PUBLIC HEALTH REPORTS

VOL. 42 OCTOBER 14, 1927 NO. 41

PREVALENCE OF POLIOMYELITIS IN THE UNITED STATES

The telegraphic reports received from the State health officers for the week ended October 8, 1927, show 650 cases of poliomyelitis reported by 42 States, as compared with 675 cases reported by 44 States, for the week ended October 1, 1927. As compared with the preceding week, increases were recorded in New Mexico in the West; in Nebraska, Iowa, Michigan, and Oklahoma in the central area; and in Maine, Massachusetts, Vermont, and Rhode Island in the eastern part of the country. Decreases were shown for Oregon, California, and Colorado in the West; for Illinois, Indiana, Kansas, Minnesota, Missouri, Ohio, and Wisconsin in the central part; and for Connecticut, New Jersey, Pennsylvania, and West Virginia in the eastern section. The reports from States for the week ended October 8 will be found on page 2515.

The weekly telegraphic reports received from the State health officers for the 14 weeks from July 3 to October 8, 1927, show 5,227 cases of poliomyelitis, as compared with 1,340 cases for the corresponding period of 1926 and with 3,772 cases for the similar period of 1925. These current telegraphic reports may be incomplete in some instances. A table showing the reported monthly prevalence of poliomyelitis, by States, from January 1 to October 1, 1927, was printed in the Public Health Reports for October 7, page 2452.

The Susceptibility to Malaria Parasites and the Relation to the Transmission of Malaria of the Species of Anopheles Common in Southern United States

By M. A. BARBER, Special Expert, W. H. W. KOMP, *Associate Sanitary Engineer* and T. B. HAYNE, *Technical Assistant, United States Public Health Service.*

Considerable data have accumulated regarding the susceptibility to malaria parasites of the *Anopheles* common in southern United States. The object of this paper is to summarize this material, to add some observations of our own, and to discuss the relation of these species to the transmission of malaria.

The species of *Anopheles* found generally in southern United States are *A. quadrimaculatus*, *A. punctipennis*, and *A. crucians*. *A. pseudopunctipennis*, abundant in parts of Texas and New Mexico, may be included in this list.

Infection Under Laboratory Conditions.—A. quadrimaculatus was proved to be susceptible to malaria parasites by Thayer (1) in 1900. He infected mosquitoes with both the tertian and the estivo-autumnal types. In 1915 King (2) (3) infected *A. punctipennis* with tertian parasites and in 1916 (4), with estivo-autumnal. In 1916 Mitzmain (Mayne) (5) (6) (7) proved the infectivity of *A. crucians* to both tertian and estivo-autumnal parasites. By the end of 1916 the susceptibility of these three species of *Anopheles* to both tertian and estivo-autumnal parasites had been well established. In all combinations the formation of sporozoites in the salivary glands had been demonstrated.

In 1910 Darling (8) infected *A. pseudopunctipennis* with estivo-autumnal parasites, and in 1926 we demonstrated that this species is also susceptible to tertian. (See Table 1, Lot 12.) No experiments have been recorded showing the susceptibility of any of these species to quartan parasites, except those of Beyer (9) and his associates, whore ported the infectibility of *A. maculipennis* (*A. quadrimaculatus*) with this type.

In Table 1 are shown the results of certain laboratory infection experiments in which two or more species of *Anopheles* were fed on the same gametocyte carrier. All were "positive" experiments, that is, at least one mosquito was infected in each experiment, so that the gametocyte carrier was known to have viable gametocytes. In all of the experiments the different species were fed at the same time. In our own experiments, Nos. 7, 8, 9, 10, 11, and 12, and in those of King, the mosquitoes were fed but once, all were fed at the same time, and only those known to have taken blood are included in the reckoning.

There is little indication in Table 1 of a greater infectibility under laboratory conditions of any one of the three species compared. The numbers are small in many of the experiments, but the number of comparisons is great enough to bring out any striking difference in susceptibility should such be present.

In our experiment No. 10, comparing *A. quadrimaculatus* with *A. crucians*, not only were the positive percentages similar, but in each species sporozoites were found in oocysts in the gut on the ninth day after the mosquitoes were fed.

TABLE 1.—*Laboratory experiments in which the infectivity of different species of Anopheles is compared*

Batch No.	Author	Reference	Type of parasite and average number gametocytes per 100 leucocytes	Species of Anopheles	Number dissected	Per cent post	Average number of oocysts per gut in positives
1	Mayne	(7)	T. O. 15.	Crucians	19	10.5	----
				Punct	38	28.9	----
				Quad	2	0.0	----
2	do	(10)	E. A.	Punct	52	26.9	67.0
				Quad	8	50.0	55.5
3	King	(3)	T. 13.0.	Punct	6	83.3	----
				Quad	3	100.0	----
4	Darling	[1] (8)	E. A.	Malefactor	3	0.0	----
				Albimanus	7	85.7	[2]
				Pseudopunct	5	40.0	7.0
5	Barber, Komp, Hayne		T. 4.7.	Crucians	33	97.0	187.0
				Punct	5	100.0	57
6	do		T. 2.8.	Crucians	3	100.0	68.7
				Quad	2	100.0	10.0
7	do		T. 0.8.	Crucians	3	66.7	13.5
				Punct	2	100.0	38.0
8	do		T. 2.5.	Crucians	14	50.0	1.4
				Quad	39	48-7	4.2
9	do		E. A. 1.3.	Punct	8	25.0	37.0
				Quad	8	0.0	----
10	do		T. 14.5.	Pseudopunct	8	12.5	1.0
				Quad	2	100.0	4.5

[1] Carrier No. 48987.

[2] Many.

In addition to the data quoted, King (in litt.) has supplied us with additional information on some of his experiments in comparison of the three species. This is shown in Table 1a below:

TABLE 1A

Case No.	Date fed	Gametes per 100 leucocytes	Punctipennis		Crucians		Quadrimaculatus	
			Number fed	Positive	Number fed	Positive	Number fed	Positive
TERTIAN PARASITES								
510	Nov. 12	----	1	1	----	----	4	3
ESTIVO-AUTUMNAL PARASITES								
511	Nov. 13	526	7	1	----	----	6	2
511-6	Nov. 23	93	3	2	7	4	2	1
511-7	Nov. 24	136	----	----	1	1	2	0
511-9	Nov. 27	36	----	----	4	4	1	0

In Table 2 we have consolidated the results of the experiments in Table 1 and have added to them the results of all "positive" batches, regardless of whether two or more species were compared in an experiment. In Group I we have assembled the results of our own positive experiments, 34 batches; in Group II, those of Mayne and King, whose work was carried out under conditions somewhat comparable with our own.

TABLE 2.—*Summary of laboratory infection experiments, including all positive batches*

GROUP I. BARBER, KOMP, HAYNE (34 BATCHES)

Species of Anopheles	Type of malaria parasite	Number dissected	Number positive	Per cent positive
Crucians	T. and E. A. combined	222	89	40.1
Punctipennis	do	28	9	32.1
Quadrimaculatus	do	299	105	35.1
All species	T	352	136	38.6
Do	E. A	205	68	33.2
Total		557	204	36.6

GROUP II. MAYNE AND KING (11 BATCHES)

Crucians	T. and E. A. combined	31	11	35.5
Punctipennis	do	119	37	31.1
Quadrimaculatus	do	41	15	36.6
All species	T	80	29	36.3
Do	E. A	111	34	30.6
Total		191	63	33.0

In Table 2 the positive percentages are very similar in both groups and in all combinations; there is little indication that any species is more susceptible than another under laboratory conditions. In neither Table 1 nor Table 2 does it appear that a given species of *Anopheles* is more susceptible to one type of malaria parasite than to another.

The results of some of the earlier infection experiments in which the proportion positive was recorded are as follows: Beyer (8), *quadrimaculatus*–tertian 3 dissected, 1 positive; Woldert (11), *quadrimaculatus*–estivo autumnal, 7 dissected, 2 positive; Hirschberg (12), *quadrimaculatus*-estivo autumnal, 48 dissected, 8 positive.

Mitzmain (Mayne) (5) fed 219 specimens of *A. punctipennis* on two crescent carriers and obtained no infections, although 74 specimens of *A. quadrimaculatus* fed on the same carriers gave an infection rate of 13.8 per cent, and 3 specimens of *A. crucians* gave a rate of 33.3 per cent. The *Anopheles* were fed on many different days, and the author does not indicate the days on which the positives were obtained nor how many *A. punctipennis* were fed on those days. These data, therefore, can not properly be included in Table 1.

Mitzmain (Mayne) (13) proved the infectibility of *A. punctipennis* with *P. vivax* by transmitting the disease to 14 human beings by means of this species.

Table 3 presents the results of dissections of *Anopheles* caught in the wild state.

TABLE 3.—*Anopheles infected in nature*

Observer	Reference	Locality	Species of Anopheles	Number dissected	Number positive	Per cent infected, gut	Sporozoites in salivary glands
Mayne[1]	(14)	Talladega Springs, Ala.	Punct		1		0
			Quad	742	2		0
Mayne[2]	(15)	Monroe, La.	Crucians	20	1	5.0	
			Punct	17	0	0.0	
			Quad	709	17	2.4	14
Metz	(16)	Polk County, Fla.	Crucians	379	2	0.5	0
			Quad	423	4	0.9	0
King	(17)	Mound, La.; Parchman, Miss.	Crucians	169	0	0.0	
			Punct	36	0	0.0	
			Quad	5,673	31	0.5	2
King*	(18)	Mound, La.	Quad	[1] 2,365 [2] 9,340	14	0.6	[3] 10
Darling	(19)	Georgia	Crucians	571	0	0.0	
			Punct	77	0	0.0	
			Quad	1,531	60	3.9	
Mayne	(20)	Okefenokee Swamp, Ga.	Crucians	307	0	0.0	

[1] Stomachs dissected. [2] Salivary glands dissected. [3] 0.107 per cent.

* In addition to the figures given above, King (in a personal communication) gives the following results based on collections made in "special" places, including houses in which known cases of malaria occurred or in which infected mosquitoes had previously been found: Two hundred and seventy-five *A. quadrimaculatus* caught in such places were dissected, and of these, 23 contained oocysts and one had sporozoites in the salivary glands. This gives a gut-infection rate of 8.3 per cent.

It is shown in Table 3 that each of the three species common in southern United States has been found infected under natural conditions. Sporozoites have been found in the salivary glands of both *A. quadrimaculatus* and *A. crucians* in the wild state. In most of the observations in which species were compared, *A. quadrimaculatus* has shown a higher percentage of infection than *A. crucians* or *A. punctipennis*. Combining the results of all observers in the dissections where the species of *Anopheles* were distinguished and where stomach infections are recorded, we have the following:

	Dissected	Per cent infected
A. crucians	1,446	0.02
A. punctipennis	130	0.0
A. quadrimaculatus	10,641	1.1

Natural infections have been recorded of *A. pseudopunctipennis* in Argentina by several investigators. (*Vide* Covell, G.: "A critical review of the data recorded regarding the transmission of malaria by the different species of *Anopheles;* with notes on distribution, habits, and breeding places." From Indian Medical Research Memoirs, Memoir No. 7, July, 1927, p. 67.)

HABITS OF ADULT ANOPHELES WITH RELATION TO MAN

In Table 4 are shown some observations with reference to daytime resting places of certain species of *Anopheles*.

TABLE 4.—*Resting places of adult Anopheles within and in the vicinity of dwellings*

Observer	Reference	Locality	Species of Anopheles	Number of Anopheles found—				
				Total number	Inside dwellings	Under houses and in porches	In privies	In barns and other outbuildings
Mayne	(14)	Talladega Spgs., Ala.	Punct	934	26	65	89	754
			Quad	438	60	40	42	296
			Cruc	599	2	415	1	181
Metz	(21)	Montgomery, Ala.	Punct	23	0	21	0	2
			Quad	47	7	28	0	12
Carter, Le Prince, Griffitts	(22)	Talladega Spgs., Ala.	Punct	115	1	23		91
			Quad	238	67	56	115	
Le Prince	(23)	North Carolina	Punct	6	6			
			Quad	859	859			
		South Carolina	Punct	250	41	209		
			Quad	1,515	1,379	136		
Barber, Komp, Hayne		Stuttgart, Ark.	Cruc	897	4		2	891
			Quad	29,738			6,405	22,352
Mayne	(20)	Okefenokee Swamp, Ga.	Cruc	10,725	1,180	1,609	965	6,971
King, Bull	(24)	Mound, La.	Quad	4,276	370	2,389		1,517

From Table 4 it appears that all common species of *Anopheles* seek dwellings and may be found resting inside of them. The number of *A. quadrimaculatus* found in dwellings usually far exceeds that of either of the other two species.

Borden (25) states that among *Anopheles* collected at Army posts in the United States, 73.2 per cent of *A. quadrimaculatus* were found in barracks or dwellings, while the percentages of *A. crucians*, *A. punctipennis*, or *A. pseudopunctipennis* found in such habitations were small.

The resting place of adult mosquitoes does not give wholly conclusive evidence as regards their avidity for human blood. One species may be as eager for human blood as another, but may be more prone to seek some place outside of dwellings after feeding. Some direct observations may be mentioned. *A. crucians* is a troublesome day-time biter along the coast. Mayne (20) reports that those bred in the fresh water of Okefenokee Swamp may enter houses in large numbers and attack man. Smith (26) states that at Cape May, N. J., *A. crucians* was a more annoying indoor biter than any other species of mosquito, including *C. pipiens*. *A. punctipennis* in large numbers has been observed to attack persons sitting on a veranda at night. Carter, Le Prince, and Griffitts (22) report that of 110 *Anopheles* biting persons on a veranda at night, all were *A. punctipennis*.

Preference for man or domestic animals.—In 1920 Barber and Hayne (27) made some experiments at Stuttgart, Ark., in which two large traps, one baited with a man and the other with pigs, were compared with respect to their attractiveness for *A. quadrimaculatus* and *A. crucians*. The traps were so constructed that ingress was

easy for mosquitoes in search of blood, but the escape of a large proportion of the fed *Anopheles* was prevented by mosquito netting. The aggregate catch of six successive nights in the man-baited trap was 615 *Anopheles*, of which 277, or 45.1 per cent, were *A. quadrimaculatus* and 338, or 54.9 per cent, were *A. crucians*. In the pig-baited trap the catch for the same nights was 659 *Anopheles*, of which 529, or 80.3 per cent, were *A. quadrimaculatus* and 130, or 19.7 per cent, *A. crucians*. The proportion varied greatly on different nights, and the aggregate may not fairly represent the preference of the different species for man or pig blood, but under these conditions man proved to be fully as attractive for *A. crucians* as the pig.

The method of Uhlenhuth (28), making use of the precipitin test for determining the origin of the blood found in the stomachs of mosquitoes, has been developed by Bull and King (29) in this country, and used by them in the study of the blood preferences of different species of *Anopheles*. Those authors (24) tested serologically over 7,000 *A. quadrimaculatus* collected in the region of Mound, La. Of those caught from inside of houses, 30.6 per cent had fed on man, but of the general collection, including those caught inside of houses, under houses, and in outbuildings, only 4.3 per cent had fed on the blood of man. Among 125 *A. crucians*, 4.8 per cent gave positive test for human blood; among 79 *A. punctipennis*, none gave a positive test.

Darling (30) used the precipitin test in comparing the origin of the blood meal of *Anopheles* found in Georgia. Among 272 specimens of *A. quadrimaculatus* he found 32 per cent with a positive test for human blood; among 236 *A. crucians* he found only 1.2 per cent; and among 10 *A. punctipennis*, none.

In laboratory feeding experiments all species may bite freely. Barber and Hayne (27) found that engorgement with pig blood did not modify the subsequent avidity of a lot of *A. crucians* for human blood, nor did it materially affect the susceptibility of that species to malaria parasites.

Comparing the different observations regarding the blood-seeking habits of the three species of *Anopheles*, it appears that all of them may at times be avid for the blood of man. *A. quadrimaculatus* appears to be the more domestic of the different species and is often found in dwellings. The avidity for human blood and the blood preference of different species seems to vary a good deal with time and locality. Certainly the evidence thus far adduced would not exclude any species as a possible vector of malaria.

Epidemiological data.—There are but few localities in this country where only one species of *Anopheles* is found, so that most of the positive evidence regarding the relationship of a species to malaria has to be based on observations where one or another species greatly predominates.

Metz (16) reports a high history index of malaria near Montgomery, Ala., where *A. crucians* predominated almost to the exclusion of any other species. He states that there are similar *crucians*-malaria localities in Florida. Frank (31) reports a parasite index of 8.4 per cent among 3,959 persons in Harrison County, Miss., for the period 1918–19. According to a survey made by one of us (Komp), *A. crucians* was abundant at the time and practically the only species present. Mayne (20) has made a study of a region in the Okefenokee Swamp in Georgia, where neither histories nor blood examinations gave any evidence of indigenous malaria, although *A. crucians*, the only *Anopheles* species present, was very abundant, and was known to enter houses and bite man freely.

Carter (32) quotes observations made in different parts of Georgia and South Carolina where little or no malaria has ever been reported in spite of the presence of numerous *A. punctipennis*. Doctor Carter was inclined to believe that *A. punctipennis* is not an important vector of malaria in southern United States, although he states that *A. punctipennis* unquestionably does convey some malaria.

Fisher (33) states that abundant malaria was found at Chester, S. C., where *A. punctipennis* was the only species found. The author believes the evidence "rather conclusive" that *A. punctipennis* was responsible for the malaria there.

Lenert (34) also states that *A. punctipennis* is the malaria carrier of the foothills of the Sierra Nevada in California.

Herms (35) states that *A. punctipennis* is an efficient carrier of malaria in the northern counties of California where malaria is prevalent. In the Sierra counties, which, in 1916–17, showed a malaria death rate of 9.1 per 100,000, the proportion of anopheline species was as follows: *A. punctipennis*, 66.9 per cent; *A quadrimaculatus*, 15.8 per cent.

All observers agree as to the relationship of *A. quadrimaculatus* and malaria prevalence. In the Mississippi Delta region *A. quadrimaculatus* greatly predominates over all other species. *A. crucians* and *A. punctipennis* are present, but generally are rare during the warmer months of the year. In that region malaria is prevalent. Bass (36) has reported high rates of malaria in Bolivar County, Miss. King (24) states that the malaria rate for the general population in Madison County, La., for 1922 was 43.2 per cent, and that *A. quadrimaculatus* is the principal malaria carrier there. We have repeatedly found high rates in certain localities in Leflore County, Miss.

Darling (30) reports that in parts of the State of Georgia there is a direct correlation of the incidence of *A. quadrimaculatus* and malaria prevalence, while in regions where *A. punctipennis* and *A. crucians* are almost exclusively found, malaria is infrequent or entirely absent.

Recently, Smillie (37) described a malaria epidemic at Gantt, Ala., where a dam, built for a hydroelectric plant, caused the overflow of a woodland region and greatly increased the production of *A. quadrimaculatus*. The malaria epidemic so coincided with the increase and distribution of *A. quadrimaculatus* in time and locality as to leave no doubt as to the relationship of the two. Malaria in relatively low degree had been present in the region prior to the overflow—a few cases had occurred among the workmen engaged in building the dam two years before the epidemic. *A. crucians* and *A. punctipennis* were present in the region but did not increase with *A. quadrimaculatus* at the time of the formation of the new lake. Whether the earlier malaria was due in part to species other than *A. quadrimaculatus* was not definitely shown, but the author concludes that this was the only species concerned in the epidemic.

Herms (35) states that in the coastal and inland coastal counties of California where *A. pseudopunctipennis* is the predominant species, it is a very weak carrier of malaria or is not a carrier at all.

Lenert (34) (reference already quoted) states that *A. pseudopunctipennis* is not a dangerous carrier of malaria.

Darling (8) concludes that *A. pseudopunctipennis* was only slightly, if at all, concerned in the transmission of malaria in Panama.

Muehlens (38) states that *A. pseudopunctipennis* is the chief malaria carrier in Argentina.

During a recent survey along the Rio Grande River in Texas and New Mexico we found a high rate of malaria prevailing in certain localities where *A. pseudopunctipennis* was the predominant species, but *A. quadrimaculatus* was also present in effective numbers.

Seasonal incidence of anopheline species.—*A. quadrimaculatus* is found the year round in many States, both in the larval and the adult stage, but is primarily a warm-weather breeder, and becomes most abundant in the period between May and September, inclusive.

King (18) has found sporozoites in the glands of this species caught in the wild state in June. It may then begin transmitting malaria relatively early in the season.

A. punctipennis tends to diminish in numbers as warm weather advances, but in some localities we have found it to persist in considerable numbers throughout the summer.

A. crucians is, in our experience, the most adaptable of the three species to variations in temperature. It is often the most plentiful winter species, and, in some localities, often persists in large numbers throughout the summer. Generally throughout the Southern States *A. quadrimaculatus* is the dominating species during the summer and early autumn.

Discussion.—The different sorts of evidence which may go to "incriminate" a species of *Anopheles* are of varying values. Cer-

tainly the fact that a species may be infected under laboratory conditions does not prove that it is of sanitary importance. Probably any species of *Anopheles* could be infected if one made trials enough with good gametocyte carriers. We get some evidence of comparative value when different species are exposed to the same carrier at the same time, but, as shown in Table 1, we may get widely variable results when conditions are supposed to be comparable. The variables are so numerous that only longer series could give much weight in comparison.

The formation of sporozoites under laboratory conditions adds to the evidence of the susceptibility of a species. In our laboratory experiments the great majority of the oocysts observed in mosquitoes which had survived 12 days or more had degenerated without the formation of sporozoites in the salivary glands. But we obtained no evidence that such degeneracy was a mark of the resistance of an anopheline species or that it occurred more often in one species than in another. It is possible that we have in the degeneration of oocysts a key to some little-understood phases of the transmission of malaria, but only a long and carefully controlled series of experiments could prove anything definite.

It is usually considered that infection in nature offers better proof of the rôle of a species in the transmission of malaria than its infection in the laboratory. But it is doubtful whether the occasional discovery of an individual with oocysts adds much to the positive laboratory evidence when we deal with species even occasionally attacking man. One would expect to find an infected specimen if the search were sufficiently prolonged in a locality where malaria is abundant. The comparison of the rate of infection with oocysts in different species among collections taken at the same time and place offers evidence of much greater value, since it not only proves that a species is susceptible, but gives some measure of the numbers taking the blood of infected persons. The sporozoite rate among specimens caught in the wild state gives, in addition, a measure of the longevity of the mosquito, and offers the best evidence of all; but the infection rate is often so small that only large series give sufficient basis for comparison of species with species.

Any evidence regarding the avidity of a species for human blood is of value in judging of its relation to the transmission of malaria. Judging from our information the house-seeking habits and animal blood preference of *Anopheles* mosquitoes are rather variable factors. So far as our present problem is concerned, all of our three more common species have, on occasion, proved to be voracious biters of man, and none of them can be exculpated because of showing too little preference for human blood.

The value of positive epidemiological evidence is great. Where the transmission of malaria occurs in the presence of a single species

of *Anopheles* the relationship is, of course, quite clear. But the absence of malaria, even in a population unscreened and exposed to the bites of mosquitoes, does not exculpate a species of *Anopheles* prevalent there. We have found very low malaria rates in the rice country of Louisiana, where both *A. quadrimaculatus* and *A. crucians* are abundant throughout the summer, and in a region in southern Alabama where both these species occurred in effective numbers. Both in this country and in Europe it is possible to find regions nearly or quite exempt from malaria in populations little protected from the bites of species known to be suitable vectors of malaria. So many factors other than the mere presence of a malaria-carrying species of *Anopheles* are concerned with malaria prevalence that the absence of the disease does not exculpate any particular kind of mosquito.

RELATION OF DIFFERENT SPECIES OF ANOPHELES TO MALARIA CONTROL MEASURES

In the light of the evidence thus far advanced (in relation to the infectivity of the different species of *Anopheles*) it is unquestioned that *A. quadrimaculatus* is an important vector of malaria in southern United States. With regard to *A. punctipennis* and *A. crucians* the evidence is less decisive. It probably may be laid down as a general principle that a species of *Anopheles* readily infected in the laboratory, found in nature with sporozoites in the salivary glands, avid for the blood of man, and occurring in considerable numbers during the warmer portions of the year, should be considered an effective carrier of malaria in the absence of any but the most conclusive negative epidemiological evidence. *A. crucians*, in some parts of this country, fulfills all tests of numbers, avidity for human blood, and susceptibility, and could hardly be acquitted on the epidemiological evidence thus far presented. Neither this species nor *A. punctipennis* can be wholly ignored when they occur in considerable numbers during the summer, as they both do in certain localities in this country.

It should not be forgotten, moreover, that a species apparently harmless in one region may be an important carrier in another. *A. bifurcatus*, in Holland a wild species never entering houses, may, in Jerusalem, where breeding conditions are radically different, become urban and domestic and the chief carrier of malaria (39). *A. hyrcanus* is little feared in the Philippine Islands or the Federated Malay States, but the type or a variety becomes a serious menace in the rice fields of Java (40).

H. F. Carter (39) states that *A. maculatus*, a recognized malaria carrier in the Malay States and associated with an increased prevalence of malaria in the lower elevations of the hill country of Ceylon.

is prevalent in regions of higher altitude in Ceylon, where the spleen rate is less than 5 per cent, although in such altitudes (1,700–2,000 feet) the temperature is not low enough to decrease the susceptibility of the anopheline host.

How far the relationship of a species to the transmission of malaria may be affected by local differences within the same country has not been fully studied. Certainly reports of differences with respect to the transmission of malaria among anopheline species have often been founded on insufficient evidence.

However important *A. crucians* or *A. punctipennis* may be under special conditions, *A. quadrimaculatus* is certainly the most effective carrier of malaria in southern United States and should be the first species considered in any malaria control measures, an opinion which seems to have been long and generally recognized among malaria workers in this country. In 1919, Griffitts (42), speaking of the species of American *Anopheles* mentions *A. quadrimaculatus* as "the one that is now generally regarded as the most important vector of malaria in the greater portion of our malarious districts."

Komp (43) speaks of this species as "the most effective carrier of malaria in this country."

Le Prince (44) states that there seems to be no doubt that *A. quadrimaculatus* is responsible for nearly all of the malaria in Southern States, and that for all practical purposes in malaria control, drainage is sufficient which considers only the potential breeding areas of *A. quadrimaculatus*.

Darling (19), judging from the infectivity rate of *Anopheles* caught in nature, from preferential feeding habits, the correlation between malaria prevalence and the seasonal density, and the epidemiological evidence, concludes that *A. quadrimaculatus* is the sole carrier of sanitary importance in certain regions of Georgia.

Smillie (37), on the basis of work conducted in Alabama by him and his coworkers, is of the opinion that for all practical purposes the control of *A. crucians* and *A. punctipennis* may be neglected, and that malaria control operations in southern United States may be generally simplified by confining operations to ponds, essentially breeding places of *A. quadrimaculatus*.

The value of differentiating between anopheline species in malaria control measures must depend on locality. With places where malaria is absent or appears in negligible quantity we are not concerned whatever species is present. Where one species so far dominates that the others are negligible, as in the Yazoo-Mississippi Delta region, the dominant species alone need be considered, whatever the breeding place. It is only in localities in which two or more species occur in effective numbers that we need consider species differences in malaria control measures.

Where larvicidal measures are employed in such localities it is important to know to what extent the different species are localized in certain breeding places during the warm season of the year. It has been our experience, based on observations in Georgia, Alabama, Louisiana, and Mississippi, that *A. quadrimaculatus* is rather adaptive in the matter of breeding places. Earlier generalizations as to selective breeding places did not hold with wider experience. The term "pond" in our experience does not properly describe the important breeding places of *A. quadrimaculatus* as they are found generally in southern United States. We have found abundant production of *A. quadrimaculatus* not only in ponds and lakes, but in various stagnant and semistagnant waters, such as irrigated rice fields, ditches, borrow pits, sluggish streams, swamps in great variety, and pools of various sorts, including those formed in the beds of drying streams and in depressions filled by summer rains or by springs.

In certain localities *A. quadrimaculatus* may be so far restricted to certain breeding places that preliminary surveys could be dispensed with before beginning malaria control work. In regions with which we are familiar, however, we have found so much variability of locality and season in the breeding of this species that preliminary surveys and continual inspections throughout the season would be necessary. A specific observation may be mentioned. In a region in southern Georgia we found the chief midsummer breeding place of *A. quadrimaculatus* in a flowing stream fed by the effluent water of a septic tank. This stream flowed far into the country and seemed to be the preferred place of *A. quadrimaculatus*, although pond water was abundant in the vicinity. In this instance, as in many others we have noted, the character of the water seemed to be a more important consideration than the size or contour of the body in which it is contained.

For the present, each locality must be a problem in itself. As our knowledge of the character of different localities grows, we may come to depend more on the generalization and less on the dipper.

Several other species of *Anopheles* are either rare in southern United States, or where they occur in large numbers, appear occasionally or only locally. Among these species, *A. atropos*, *A. walkeri*, and *A. barberi* have never been proved to be susceptible to malaria parasites. *A. albimanus*, which has been reported from southern Texas, was long ago proved by Darling (8) to be the chief malaria vector in Panama.

SUMMARY

The three species of *Anopheles* common in southern United States, *A. quadrimaculatus*, *A. punctipennis* and *A. crucians*, are all easily infected with malaria parasites in the laboratory. All have been found infected in nature, *A. quadrimaculatus* and *A. crucians* with

sporozoites in the salivary glands. *A. punctipennis* has been proved capable of transmitting malaria to man under laboratory conditions. *A. quadrimaculatus* is the summer species of widest distribution. It is the one most commonly found in dewllings and has been found infected in nature in higher proportion than the other species. Epidemiological evidence goes to show that it is the most important carrier of malaria in southern United States. In any antimosquito malaria control work this species should receive first attention, but we do not believe that the evidence thus far adduced can exculpate either *A. punctipennis* or *A. crucians* as possible carriers of malaria.

REFERENCES

(1) Thayer, W. S.: On recent advances in our knowledge concerning the etiology of malarial fever. Phila. Med. Jour., 1900, vol. 5, pp. 1046–1048.
(2) King, W. V.: The rôle of Anopheles punctipennis Say in the transmission of malaria. Science, vol. 42, No. 1094, pp. 873–874, 1915.
(3) King, W. V.: Anopheles punctipennis, a host of tertian malaria. Am. Jour. Trop. Dis. and Prev. Med., vol. 3, No. 8, pp. 426–432, 1916.
(4) King, W. V.: Experiments on the development of malaria parasites in three American species of Anopheles. Jour. Exp. Med., Vol. XXIII, No. 6, June, 1916, pp. 703–716.
(5) Mitzmain, M. B.: Anopheles punctipennis Say. Its relation to the transmission of malaria. Pub. Health Rep., vol. 31, No. 6, Feb. 11, 1916, pp. 301–307.
(6) Mitzmain, M. B.: Tertian malarial fever. Pub. Health Rep., vol. 31, No. 19, May, 1916, pp. 1172–1177.
(7) Mitzmain, M. B.: Anopheles crucians: Their infectibility with the parasites of tertian malaria. Pub. Health Rep., vol. 31, No. 12, March 24, 1916, pp. 764–765.
(8) Darling, S. T.: Studies in relation to malaria. Isthmian Canal Commission, Laboratory of the Board of Health, Department of Sanitation, 1910. Government Printing Office, Washington, D. C.
(9) Beyer, G. E., Pothier, O. L., Couret, M., and Lemann, I. I.: Bionomics: Experimental investigations with Bacillus Sanarelli and experimental Investigations with malaria. New Orleans Med. & Surg. Jour., 1901–1902, Vol. LIV, pp. 419–480.
(10) Mitzmain, M. B.: Anopheles punctipennis. A note on its ability to serve as a host for Plasomodium falciparum. Pub. Health Rep., July 6, 1917, vol. 32, No. 27, pp. 1081–1083.
(11) Woldert, A.: Cultivation of the estivo-autumnal malarial parasite in the mosquito—Anopheles quadrimaculatus. Jour. A. M. A., vol. 36, No. 9, pp. 559–563, 1901.
(12) Hirschberg, L. K.: An Anopheles which does not transmit malaria. Bull. Johns Hopkins Hosp., vol. 15, pp. 53–56, 1904. (Quoted from King.)
(13) Mitzmain, M. B.: Anopheles infectivity experiments. Pub. Health Rep., vol. 31, No. 35, Sept. 1, 1916, pp. 2325–2335.
(14) Mitzmain, M. B.: Anopheline mosquitoes: Their distribution and infection under field conditions. Pub. Health Rep., vol. 32, No. 15, April 13, 1917, pp. 536–540.
(15) Mitzmain, M. B.: Infectivity of Anopheles crucians in nature. Pub. Health Rep., vol. 34, No. 25, June 20, 1919, pp. 1355–1357.

(16) Metz, C. W.: Anopheles crucians Wied. as an agent in malaria transmission. Pub. Health Rep., vol. 34, No. 25, June 20, 1919, pp. 1357–1360.
(17) King, W. V.: Natural malaria infection in Anopheles mosquitoes. Am. Jour. Trop. Med., vol. 1, No. 1, January, 1921, pp. 35–39.
(18) King, W. V.: Anopheles infection under natural conditions. So. Med. Jour., vol. 17, No. 8, August, 1924, pp. 596–597.
(19) Darling, S. T.: Entomological research in malaria. So. Med. Jour., vol. 18, No. 6, June, 1925, pp. 446–449.
(20) Mayne, B.: A malaria survey of the Okefenokee Swamp. Pub. Health Rep., vol. 41, No. 32, Aug. 6, 1926, pp. 1652–1660.
(21) Metz, C. W.: Anopheles crucians: Habits of larvae and adults. Pub. Health Rep., vol. 33, No. 49, December, 1918, pp. 2156–2169.
(22) Carter, H. R., LePrince, J. A., and Griffitts, T. H. D.: Impounded water. Pub. Health Bull. No. 79, September, 1916.
(23) LePrince, J. A., and Griffitts, T. H. D.: Notes from a malaria survey: Impounded waters, biting of A. punctipennis on porches, distance of flight of A. quadrimaculatus. So. Med. Jour., vol. 10, No. 8, August, 1917, pp. 642–644.
(24) King, W. V., and Bull, C. G.: The blood feeding habits of malaria-carrying mosquitoes. Am. Jour. Hyg., vol. 3, No. 5, September, 1923, pp. 497–513.
(25) Borden, W. B.: Anopheles mosquitoes and malaria at Eastern Army stations. Mil. Surg., vol. 59, No. 4, October, 1926, pp. 452–469.
(26) Smith, J. B.: Report of New Jersey State Agr. Expt. Sta. Mosquitoes. 1904.
(27) Barber, M. A., and Hayne, T. B.: Some notes on the relation of domestic animals to Anopheles. Pub. Health Rep., vol. 39, No. 4, Jan. 25, 1924, pp. 139–144.
(28) Uhlenhuth, P., Weidanz, O., and Augeloff: Ueber den Biologischen Nachweis der Herkunft von Blut in Blutsaugenden Insekten. Arbeiten aus der Kaiserl. Gesundheitsamte., vol. 5, No. 28, 1908, pp. 595–599.
(29) Bull, C. G., and King, W. V.: The identification of the blood meal of mosquitoes by means of the precipitin test. Am. Jour. Hyg., vol. 3, No. 5, 1923, pp. 491, 496.
(30) Darling, S. T.: Discussion on relative importance, in transmitting malaria, of Anopheles quadrimaculatus, punctipennis, and crucians, and advisability of differentiating between these species in malaria control. So. Med. Jour., vol. 18, No. 6, June, 1925, pp. 452–458.
(31) Frank L. C.: Final report of sanitary operations, Mississippi Coastal District. Miss. State Bd. of Health and U. S. Public Health Service. 1919.
(32) Carter, H. R.: Effect of A. punctipennis on the natural conveyance of malarial fever. Pub. Health Rep., April 19, 1918, vol. 33, No. 16, pp. 572–575.
(33) Fisher, L. M.: Bulletin South Carolina State Board of Health, May, 1923, pp. 1–53.
(34) Lenert, L. G.: Mosquitoes and malaria control. Calif. State Bd. of Health Bulletin No. 44. 1924.
(35) Herms, W. B.: Occurrence of malaria and an opheline mosquitoes in Northern California. Pub. Health Rep., vol. 34, No. 29, 1919, pp. 1579–1587.
(36) Bass, C. C.: In Tice's "Practice of Medicine," vol. 3, p. 554, 1921.
(37) Smillie, W. G.: Studies of an epidemic of malaria at the Gantt Impounded area, Covington County, Alabama. Am. Jour. Hyg., vol. 7, No. 1, pp. 40–72, January, 1927.
(38) Muehlens, P.: Beitraege zur Pathologie von Sudamerika. Beihefte z. Arch. f. Schiffs-u. Tropen-Hyg., vol. 30, No. 1, pp. 143–160, October, 1925.

(39) Swellengrebel, N. H.: Palestine Proc. Eleventh Meeting of the Antimalaria Advisory Commission, May 19, 1925.
(40) Walch, E. W.: Some remarks on the malaria of the Dutch East Indies. So. Med. Jour., vol. 18, No. 6, pp. 434–438, June, 1925.
(41) Carter, H. F.: Report on malaria and anopheline mosquitoes in Ceylon. H. R. Cottle, Govt. Printer, Ceylon, March, 1927.
(42) Griffitts, T. H. D.: The flight of Anopheles. Transactions of the First Annual Conference of Sanitary Engineers and Other Officers of the Public Health Service Directing Antimalaria Campaigns. Pub. Health Bull. No. 104, 1919.
(43) Komp, W. H. W.: Guide to mosquito identification for field workers engaged in malaria control in the United States. Pub. Health Rep., vol. 38, No. 20, pp. 1061–1080, May 18, 1923.
(44) LePrince, J. A.: Development of mosquito control in the southern States. Proc. Eleventh Annual Meeting of the New Jersey Mosquito Extermination Association. February, 1924.

PREDICTING EPIDEMICS OF PLAGUE IN THE PUNJAB [1]

A PRELIMINARY NOTE BY LIEUT. COL. W. H. C. FORSTER, I. M. S., DIRECTOR OF PUBLIC HEALTH OF THE PUNJAB, PRESENTED AT THE APRIL, 1927, MEETING OF THE COMMITTEE OF THE INTERNATIONAL OFFICE OF PUBLIC HYGIENE BY LIEUT. COL. J. D. GRAHAM, I. M. S., COMMISSIONER OF PUBLIC HEALTH TO THE INDIAN GOVERNMENT, DELEGATE OF BRITISH INDIA.

The curve of gross mortality in the Punjab for the last 26 years presents a series of extreme oscillations, caused by the outbreaks in epidemic form of certain diseases, the most important of which is plague, which caused approximately 3,000,000 deaths in the period 1901–1924.

An idea of the devastations produced by this disease can be formed by considering that during the period 1901–1911 the population of the Province was reduced 0.18 per 100 in the British territory and 0.48 per 100 in the States under native rule.

During the period 1919–1922 the disease was latent, but the hopes engendered were dissipated in 1924 by a severe epidemic, followed by another in 1926. The number of deaths attributed to these two epidemics is 360,000. These experiences have demonstrated that a new study should be undertaken regarding the problem of plague from the point of view of prophylaxis. In this memorandum there is considered the relationship between some of the results following the researches upon the subject in the Punjab.

We have prepared a monthly mortality curve for the Punjab for the period 1901–1924. By the expression "monthly mortality" we mean the total number of deaths actually known to be from plague for each of the 12 months during the entire period considered. For particular reasons we have adopted this plan of laying out a curve. But the curve given is not a graphic representation; we give the figures themselves in Table 1:

[1] Translation from the Bulletin Mensuel, June, 1927.

TABLE 1.—*Monthly mortality from plague in the Punjab during the period 1901–1924*

January	5, 290	September	226
February	9, 029	October	751
March	23, 034	November	1, 826
April	41, 556	December	3, 234
May	32, 077		
June	5, 909	Average monthly mortality	10, 315
July	728		
August	122		

From the month of August, the lowest point, the curve rises slowly but regularly each month until February; from this point it rises rapidly to its maximum in April, then declines slowly in May; the decline is then as rapid as had been the increase. The curve goes above the average monthly mortality only during three months of the year—March, April, and May—but during these months it is much above the average.

This curve reveals a serious difficulty in the practice of prophylaxis in the disease. When the epidemic is at its peak, there is little recourse to anything besides vaccination to reduce the mortality. Vaccination being voluntary, there is no demand for it except when there is an epidemic, and then the demand is proportionate to the gravity of the epidemic. The table below compares the monthly data relative to vaccinations for 1925 (year in which there was a moderate epidemic) with the corresponding figures for 1926 (year of severe epidemic). The figures in parentheses represent the monthly mortality.

TABLE 2.—*Comparison of monthly vaccinations with monthly mortality (mortality figures in parentheses)*

Year	January	February	March	April
1925	43, 729	51, 480	70, 281	60, 961
	(4, 455)	(5, 093)	(10, 040)	(11, 885)
1926	33, 558	61, 943	99, 117	222, 999
	(2, 660)	(7, 285)	(19, 678)	(34, 739)

As the mortality for April varies between 195,000 (1907) and 651 (1921), it is evident that the demand for antiplague vaccine fluctuates considerably. But antiplague vaccine as furnished by the Haffkine Institute requires four or five months for preparation and maturation, for the reaction caused by the inoculation of immature vaccine is severe enough to make it preferable not to use it at that stage.

Antiplague vaccine should be ordered at least four months in advance, or that needed during the epidemic period—March, April, and May—should be estimated in November of the preceding year. An estimate too low would be distressing, and one too high would be

financially burdensome, for the vaccine costs 12,500 rupees per 100,000 doses. From this point of view alone the prediction of epidemics of plague is of considerable practicable importance, and it is this problem especially which prompted the study. The principal purpose was to find a "critical point" on the autumnal part of the curve, a point by which one could predict the height of the curve during the epidemic period of the following year with a reasonable accuracy. Up to the present time the following relationships have been detected:

1. If, in any year, the seasonal curve corresponds exactly to the monthly curve for the period 1901–1924, it would appear that there is no critical point from which to make a prediction of the height of the curve during the epidemic of the following year.

2. If, in any year, the seasonal curve deviates from the monthly curve in showing a December mortality below that for November, it follows that the height of the curve in the epidemic period of the following year can be predicted with very great accuracy.

This second conclusion is of great importance, but before considering it further it is best to adopt certain arbitrary definitions. If we term "index" the maximum reported monthly mortality during the epidemic period of the following year, we may say:

If the index is 3,000 or less, the epidemic is negligible.

If the index is greater than 3,000, but less than 6,000, the epidemic is light.

If the index exceeds 6,000, but is less than 12,000, the epidemic is moderate.

The phenomenon under consideration has occured six times during the period 1901–1926, and the data are given in the following table:

TABLE 3.—*November and December mortality and maximum monthly mortality in the following spring*

Year	November mortality	December mortality	"Index" following year	Type of epidemic following year
1907	1,245	1,103	10,459	Moderate.
1912	334	299	6,994	Do.
1916	203	109	994	Negligible.
1919	172	118	1,498	Do.
1920	44	37	651	Do.
1926	795	713	(?)	(?)

It seems that there is a certain qualitative relation between the height of the curve during the period November–December and the index of the following year. If the critical portion of the curve is high, the index tends to touch, approximately, the limit of 12,000; if it is low, the index falls below the limit of 3,000; but no exact figures can be given the terms "high" and "low."

The most interesting point for the moment would be to predict that which will occur after 1926. What will 1927 bring us? In the first days of January, after the mortality for December was known, a "moderate epidemic" was predicted for 1927. At the present writing there are no indications that the prediction will not be true; unless we are destined for new experiences with regard to plague, the epidemic period is now too far advanced to upset the prediction.

The examples cited of the phenomenon are not numerous; one might say that they are too few to justify the drawing of any definite conclusions, but it must be recalled that we are not concerned here with the numerical expression of a problem of the biological order. What is aimed to establish is that if, instead of increasing monthly in a regular manner from August to April, the disease undergoes a regression in December, as is shown by the decline in the seasonal curve for that month, it follows that the regression reflects a very important evolution in the cycle rat–flea–plague. There is ample reason to believe that this proposition is correct, and, in that case, the number of examples is not of great importance.

Aside from the pneumonic form of plague, which plays no important part in the statistics of the Punjab, the mortality from plague is the expression of the number of infected fleas which attack man. The number of fleas depends on the number of rats and also on the cycle of reproduction of fleas. These two cycles are under the influence of different conditions, in a manner that it is possible that one is affected independently of the other. Experience indicates that the cycle of the fleas is the most subject to interruption, and it is that which plays the most important rôle in regard to the fluctuations in the mortality from plague. Up to the present, there have not been made, in the Punjab, direct observations on that subject, and difficulty is encountered in bridging that hiatus. That which follows, then, is only a theory, but that theory merits consideration. The observations which we present actually tend to indicate that the average number of fleas per rat increases slowly, but regularly, up to the spring season, when rats reproduce in great number, and when the reproduction of fleas seems equally to receive a great impetus. The number of fleas per rat, which is the lowest in August, increases gradually up to January; then the rise is sharp. The reproduction of the fleas is the only factor in this biological cycle, the progress of which is the same as that of plague mortality; it should logically be considered as the cause of the seasonal mortality fluctuations. Whether that conclusion is correct or not, it furnishes a plausible explanation of the phenomenon under consideration.

Beginning with September, the plague mortality, of no importance in that month, will be the total of the figures for the preceding month and for the first part of the month in question. Then, the mortality

for December will be the sum of the figures for November and for the first part of December. If in November the reproduction of fleas undergoes a great check, that fact ought to be reflected in the December mortality; and if that check continues in December, the result ought to manifest itself in the January mortality, which should, according to the theory, be less than that in December.

Humidity is a factor of primary importance in the cycle of flea reproduction, and, consequently, in what concerns the arid plains of the Punjab, it seems reasonable to suppose that a month of November without rain will cause a dimunition in the January mortality. That is what occurred in 1926–27. All the plague regions were without rain during November, December, and the first part of January, and, for the first time in the history of plague in the Punjab, the seasonal curve showed a decline not only in December but also in January.

An interesting point, and one which seems to emphasize the critical importance of November rains, is that, although the seasonal mortality curve may decline in October, that fact is not an indication of a low index for the following year. The following table gives the comparative monthly mortality figures for corresponding periods of 1925–26, and of 1926–27, the figures for 1925–26 furnishing the proof of the above statement.

TABLE 4.—*Comparative monthly mortality figures for 1925–26 and 1926–27*

Year	August	September	October	November	December	January	Index of following year
1925–26	196	158	47	295	1,050	2,660	35,000
1926–27	117	119	413	795	713	404	(?)

In 1925 the rains stopped abruptly in the middle of August, and there was no more rain until November, when the fall was excessive. In conformance to the reappearance of these rains, it will be noted that the seasonal curve dropped in September and October; the rains of November, however, brought a sharp rise that developed into a severe epidemic in the following spring.

The rains were normal in 1926, the monsoons ending toward the close of September. Then, with the exception of a rain of little importance in October, the plague regions were without rain until the end of January. The effect of that condition has already been indicated.

The correlation of the meteorological data with the cycle rat–flea–plague being a little difficult to determine, we shall summarize it up to the point where it should be subjected to mathematical analysis. For the time being the theory that we offer may be summed up as follows:

1. The seasonal curve of plague mortality in the Punjab for the period 1901–1924 shows a progressive and uninterrupted high monthly increase from August to the following April.

2. The number of fleas per rat shows, according to the data on hand, a similar curve.

3. The mortality from plague, other than pneumonic, being the expression of the number of infected fleas which have bitten human beings, it is logical to assume that the reproduction of fleas has an important influence upon the seasonal mortality curve.

4. As a corollary to (3), a check in the cycle of reproduction of fleas should be reflected in a corresponding decrease in the seasonal mortality curve.

5. Humidity being a factor of vital importance in the cycle of flea reproduction, it is reasonable to assume that, in the arid plains of the Punjab, that cycle is affected by the rains. Long dry periods during the fall and winter should retard flea reproduction and produce a corresponding drop in the seasonal mortality curve.

6. Analysis of statistical data for 26 years shows that a drop in the seasonal curve for December indicates no epidemic the following spring. In all the years observed, the outbreak following has been moderate or negligible, according to whether or nor the seasonal mortality was more or less high in November. That fact seems to furnish a basis for predicting the character of the spring epidemic.

7. A supplementary analysis demonstrates that a decline in the fall-winter part of the curve, whatever it may be in the other months, is not necessarily an indication that there will be no epidemic the following spring.

8. The available data seem to suggest that a decline in the fall-winter part of the seasonal curve is the result of dry weather, and that November rains are of great importance in determining the character of the spring outbreak.

EDITORIAL NOTE.—The prediction for 1927, based on the authors' hypothetical "critical" mortality for December, 1926, seems to have been fulfilled. According to the plague mortality figures for the Punjab published in the Epidemiological Report, issued by the health section of the League of Nations, the "index" for 1927 was 2,012, being the maximum monthly plague mortality—that reported for the month of April. The epidemic was, therefore, "negligible," according to the definition given by the authors. Fewer cases of plague have been reported throughout all India, however, during the first half of 1927 than during the corresponding period of any previous year. During the three weeks ended June 18, 1927, only 600 cases were reported, as compared with 7,594 during the corresponding period of the preceding year.

The monthly plague mortality in the Punjab for 1927, as given by the Epidemiological Report, is as follows:

	Deaths		Deaths
January [1]	404	To May 28	1,233
February	589	May 29–June 18	178
March	1,545	June 19–July 16	20
April	2,012		

If extensive rat and flea surveys could be made in the Pubjab and the data correlated with meteorological data and plague mortality, the results would not only add information of great value to the epidemiology of plague generally but would also decisively support or invalidate the assumed critical December "index" for the Punjab, which seems to be supported by the data set forth above.

At the meeting of the First Pan American Conference of Directors of Health, held in Washington, D. C., September 27–29, 1926, a committee was appointed to formulate a program for the investigation of plague. This committee recommended that the Pan American Sanitary Bureau request each of the signatory powers to begin in one or more places, preferably ports, a survey of rats and rat fleas. Some of this work has already been begun and reports are being received, particularly from Ecuador. In the United States, rat-flea surveys are now being conducted in New York, Savannah, Ga., and Norfolk and Newport News, Va., as well as in San Juan, P. R.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Compensation granted under workmen's compensation act for death from typhoid fever.—(California First District Court of Appeal, Division 1; Fidelity and Casualty Co. of New York *v.* Industrial Accident Commission of California et al., 258 P. 698; decided July 20, 1927.) An employee was sent by his employers from San Francisco to Valparaiso, Chile, to represent them at a conference, and was also instructed to visit various concerns in South America with whom his employers were interested in a business way. Pursuant to instructions the employee went to Valparaiso, stopping at several places en route, and, upon completing his duties there, visited several other places. Upon arrival at a certain place in Peru he was taken to a hospital where he later died from typhoid fever. It was shown that one of the employers at least was familiar with health conditions in Chile and Peru, and that through him the employee was warned of the danger of contracting the disease and advised as to the precautions to be taken to avoid it. The State industrial accident commission awarded compensation to the widow, holding that the

[1] The periods for which the figures are given coincide approximately with the months.

employee sustained an injury, arising out of and in the course of his employment, which was the proximate cause of his death. On appeal it was contended by the insurance carrier that the disease contracted by the deceased was due to a risk of the commonalty, and that, at the time the disease was contracted, the deceased was not performing a service for his employers. The district court of appeal in affirming the award said:

* * * It further appears that the disease, while not epidemic in the places visited, was prevalent there and, owing to sanitary conditions, a constant source of danger. It is clear from the testimony that the employers were aware of the danger and that the employee, during the period which elapsed between the arrival at Valparaiso and the date he reached Arequipa, was engaged in performing the duties of his employment, and the evidence reasonably supports the conclusion that the disease was contracted during that period.

* * * * * * *

In the instant case * * * it appears that the employers were aware of the prevalence of the disease contracted by the employee in the localities which he was directed to visit. Furthermore, the evidence sufficiently shows that the inhabitants of these localities, while not immune from the disease, were less subject to infection therefrom than foreigners, and we are unable to say that the conclusion of the commission that the employee was subjected to an exposure in excess of that of the commonalty was not reasonably supported.

Act authorizing establishment of sewer districts held unconstitutional.—(Missouri Supreme Court; Rose et al. *v.* Smiley et al., County Judges, 296 S. W. 815; decided June 27, 1927.) A 1921 Missouri law authorized the establishment of sewer districts "in any county * * * now having or which may hereafter have a population of more than 100,000 inhabitants and less than 200,000 inhabitants, and which county now or hereafter adjoins a city which now contains or may hereafter contain a population of 500,000 or more."

The State constitution contained the following provision:

In all other cases where a general law can be made applicable, no local or special law shall be enacted.

The city of St. Louis was not located in any county and was the only city in the State so situated, all other cities being within the borders of some county.

The supreme court held the said act to be unconstitutional, stating as follows:

The act was intended to apply to no other county than St. Louis County. The words, "or hereafter contain," were thrown in to give the act a general appearance, when in facts [sic] its purpose and effect were strictly local. As pointed out in the Armstrong case, there are, no doubt, many counties which, in point of population and in congested areas, are as much in need of sanitary sewers as St. Louis County. A general law could be passed, with a classification based upon population, which would apply to many other counties, and therefore the act is contrary to the clause of the constitution mentioned.

DEATHS DURING WEEK ENDED SEPTEMBER 24, 1927

Summary of information received by telegraph from industrial insurance companies for week ended September 24, 1927, and corresponding week of 1926. (From the Weekly Health Index, September 28, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Sept. 24, 1927	Corresponding week 1926
Policies in force	68,442,942	65,375,826
Number of death claims	11,963	11,028
Death claims per 1,000 policies in force, annual rate	9.1	8.8

Deaths from all causes in certain large cities of the United States during the week ended September 24, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, September 28, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Sept. 24, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Sept. 24, 1927 [2]
	Total deaths	Death rate [1]		Week ended Sept. 24, 1927	Corresponding week 1926	
Total (68 cities)	6,072	10.7	[3] 11.3	675	[3] 842	[4] 53
Akron	22			5	9	54
Albany [5]	33	14.3	11.8	3	3	63
Atlanta	66			8	8	
White	28			3	5	
Colored	38	(6)		5	3	
Baltimore [5]	193	12.3	13.6	25	31	77
White	153		11.8	19	22	73
Colored	40	(6)	23.7	6	9	93
Birmingham	74	17.9	12.1	11	5	
White	40		11.8	7	4	
Colored	34	(6)	12.6	4	1	
Boston	195	12.8	15.8	35	45	98
Bridgeport	27			5	2	93
Buffalo	124	11.8	11.7	9	18	38
Cambridge	23	9.7	12.8	0	5	0
Camden	28	11.6	12.3	7	3	120
Canton	21	9.7	8.5	3	3	71
Chicago [5]	576	9.7	10.6	56	78	48
Cincinnati	106	13.4	15.2	14	20	87
Cleveland	143	7.6	10.2	15	23	40
Columbus	64	11.5	14.3	9	15	84
Dallas	40	10.0	17.2	5	21	
White	33		18.1	4	21	
Colored	7	(6)	11.6	1	0	
Dayton	36	10.4	11.2	4	8	66
Denver	66	11.9	11.3	14	8	
Des Moines	27	9.4	10.4	1	3	17
Detroit	200	8.2	11.2	29	39	46
Duluth	23	10.4	12.0	4	3	86
El Paso	25	11.4	10.5	3	4	
Erie	15			0	2	0
Fall River [5]	22	8.6	10.7	3	1	53
Flint	35	12.8	7.7	8	5	131
Fort Worth	25	7.9	12.1	2	4	
White	17		10.4	1	3	
Colored	8	(6)	24.7	1	1	
Grand Rapids	23	7.5	9.7	1	4	15
Houston	51			8	13	
White	31			6	4	
Colored	20	(6)		2	9	
Indianapolis	96	13.4	12.8	8	5	63
White	76		11.6	5	5	45
Colored	20	(6)	21.3	3	0	183

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 67 cities.
[4] Data for 63 cities.
[5] Deaths for week ended Friday, Sept. 23, 1927.
[6] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended September 24, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Sept. 24, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Sept. 24, 1927
	Total deaths	Death rate		Week ended Sept. 24, 1927	Corresponding week 1926	
Jersey City	42	6.8	11.0	6	5	45
Kansas City, Kans	15	6.7	14.7	2	5	39
White	8		11.3	2	3	45
Colored	7	(2)	30.5	0	2	0
Kansas City, Mo	82	11.2	11.7	10	15	
Knoxville	21	10.7		2		
White	19			2		
Colored	2	(2)		0		
Los Angeles	221			25	15	72
Louisville	65	10.6	12.2	2	10	17
White	51		10.7	2	9	19
Colored	14	(2)	21.1	0	1	0
Lowell	31	14.7	14.7	7	6	135
Lynn	14	7.0	9.5	1	2	26
Memphis	54	15.7	17.1	3	9	
White	37		12.3	1	7	
Colored	17	(2)	25.7	2	2	
Milwaukee	66	6.5	9.0	10	10	47
Minneapolis	67	7.9	10.6	5	8	28
Nashville [1]	32	12.1	14.8	2	3	
White	20		14.4	1	3	
Colored	12	(2)	16.0	1	0	
New Bedford	17	7.4	11.8	0	5	0
New Haven	37	10.4	16.0	4	5	56
New Orleans	143	17.6	13.1	21	17	
White	94		9.1	12	9	
Colored	49	(2)	24.4	9	8	
New York	1,117	9.8	10.6	112	159	46
Bronx Borough	133	7.5	7.9	13	14	41
Brooklyn Borough	371	8.5	9.0	39	53	40
Manhattan Borough	476	13.7	14.3	47	74	55
Queens Borough	100	6.4	8.7	12	12	51
Richmond Borough	37	13.1	13.1	1	6	19
Newark, N. J	72	8.1	9.4	6	14	30
Oakland	53	10.4	8.2	4	2	47
Oklahoma City	32			1	2	
Omaha	41	9.8	8.7	2	3	22
Paterson	22	8.0	9.5	4	6	71
Philadelphia	396	10.1	11.0	53	49	71
Pittsburgh	132	10.7	13.2	16	20	56
Portland, Oreg	56			2	4	21
Providence	54	10.0	9.1	4	5	34
Richmond	36	9.8	11.6	1	7	13
White	19		9.3	0	3	0
Colored	17	(2)	17.1	1	4	33
Rochester	59	9.5	8.4	6	9	50
St. Louis	400	25.4	11.7	41	25	
St. Paul	45	9.4	13.2	4	3	18
Salt Lake City [1]	27	10.4	12.9	4	3	61
San Antonio	38	9.4	10.4	8	10	
San Diego	47	21.3	12.8	5	2	106
San Francisco	145	13.1	11.6	6	6	37
Schenectady	18	10.1	9.5	2	1	60
Seattle	66			3	9	31
Somerville	22	11.2	8.9	2	2	72
Spokane	22	10.5	12.0	2	3	50
Springfield, Mass	33	11.7	12.6	5	6	77
Syracuse	39	10.3	9.6	2	3	26
Tacoma	16	7.8	9.8	0	0	0
Toledo	62	10.6	13.4	8	20	77
Trenton	28	10.7	11.7	4	3	70
Utica	29	14.7	13.7	3	2	68
Washington, D. C	102	9.8	11.5	13	12	75
White	57		10.3	4	8	34
Colored	45	(2)	14.8	9	4	165
Waterbury	20			1	1	24
Wilmington, Del	27	11.2	9.3	3	3	74
Worcester	49	13.1	12.7	6	6	72
Yonkers	15	6.6	7.6	2	1	45
Youngstown	24	7.4	7.0	5	3	70

[1] Deaths for week ended Friday, Sept. 23, 1927.

[2] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

DEATHS DURING WEEK ENDED OCTOBER 1, 1927

Summary of information received by telegraph from industrial insurance companies for week ended October 1, 1927, and corresponding week of 1926. (From the Weekly Health Index, October 5, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Oct. 1, 1927	Corresponding week 1926
Policies in force	68, 508, 967	65, 439, 019
Number of death claims	10, 910	11, 069
Death claims per 1,000 policies in force, annual rate	8. 3	8. 8

Deaths from all causes in certain large cities of the United States during the week ended October 1, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, October 5, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Oct. 1, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Oct. 1, 1927 [2]
	Total deaths	Death rate [1]		Week ended Oct. 1, 1927	Corresponding week 1926	
Total (67 cities)	6,129	10.8	[3] 11.0	730	[3] 840	[4] 61
Akron	37			7	10	75
Albany [5]	39	16.9	11.0	6	3	125
Atlanta	68			5	13	
White	35			4	8	
Colored	33	(6)		1	5	
Baltimore [5]	209	13.3	12.6	22	35	68
White	149		10.6	14	25	54
Colored	60	(6)	24.1	8	10	124
Birmingham	63	15.3	14.3	9	14	
White	29		9.8	6	4	
Colored	34	(6)	21.4	3	10	
Boston	182	12.0	11.7	27	28	75
Bridgeport	26			3	4	56
Buffalo	136	12.9	13.7	22	20	93
Cambridge	25	10.5	6.8	2	1	36
Camden	33	12.9	10.3	5	9	86
Canton	29	13.4	6.6	3	2	71
Chicago [5]	589	9.9	10.0	80	75	69
Cincinnati	110	13.9	12.7	10	8	62
Cleveland	147	7.8	9.2	23	28	61
Columbus	68	12.2	13.7	7	19	65
Dallas	40	10.0	10.5	4	10	
White	32		10.1	3	15	
Colored	8	(6)	13.5	1	1	
Dayton	39	11.3	14.1	5	7	82
Denver	65	11.7	14.1	6	7	
Des Moines	30	10.5	10.0	1	1	17
Detroit	235	9.2	10.9	36	50	57
Duluth	24	10.9	8.8	1	2	22
El Paso	29	13.3	9.1	6	2	
Erie	18			0	7	0
Fall River [5]	23	9.0	11.9	1	6	18
Flint	33	12.0	8.1	10	6	103
Fort Worth	33	10.5	7.2	4	4	
White	26		6.7	4	4	
Colored	7	(6)	11.0	0	0	
Grand Rapids	26	8.5	9.4	5	3	73
Houston	56			5	9	
White	30			4	6	
Colored	26	(6)		1	3	
Indianapolis	94	13.1	11.8	10	10	78
White	74		12.1	6	10	54
Colored	20	(6)	9.5	4	0	244

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 66 cities.
[4] Data for 61 cities.
[5] Deaths for week ended Friday, Sept. 30, 1927.
[6] In the cities in which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 13; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended October 1, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Oct. 1, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Oct. 1, 1927
	Total deaths	Death rate		Week ended Oct. 1, 1927	Corresponding week 1926	
Jersey City	60	9.7	9.8	12	10	90
Kansas City, Kans.	25	11.1	14.3	2	5	39
White	21		11.9	2	4	45
Colored	4	(6)	25.4	0	1	0
Kansas City, Mo.	79	10.8	11.7	9	21	
Knoxville	23	11.8		5		
White	22			5		
Colored	1	(6)		0		
Los Angeles	243			27	12	77
Louisville	58	9.5	13.7	8	9	68
White	38		13.6	8	7	78
Colored	20	(6)	14.4	0	2	0
Lowell	19	9.0	16.1	2	3	39
Lynn	23	11.4	6.5	0	2	0
Memphis	42	12.2	15.3	2	8	
White	24		11.4	1	6	
Colored	18	(6)	22.3	1	2	
Milwaukee	105	10.3	8.6	19	21	89
Minneapolis	56	6.6	10.6	3	9	17
Nashville [5]	42	15.9	18.6	2	6	
White	22		13.8	0	5	
Colored	20	(6)	30.7	2	1	
New Bedford	17	7.4	7.9	2	3	35
New Haven	32	9.0	10.9	4	2	56
New Orleans	132	18.7	16.6	18	18	
White	87		12.4	9	7	
Colored	65	(6)	28.2	9	11	
New York	1,147	10.0	10.1	112	149	46
Bronx Borough	137	7.7	8.5	7	19	22
Brooklyn Borough	387	8.9	9.2	43	57	44
Manhattan Borough	480	13.8	13.5	52	61	61
Queens Borough	111	7.2	5.6	8	9	34
Richmond Borough	32	11.4	13.5	2	3	37
Newark, N. J.	87	9.7	9.4	13	9	64
Oakland	65	12.7	11.0	6	3	70
Oklahoma City	22			3	1	
Omaha	49	11.7	13.3	3	6	33
Paterson	22	8.0	11.3	0	7	0
Philadelphia	405	10.4	11.0	43	53	57
Pittsburgh	145	11.8	11.1	32	17	112
Portland, Oreg.	67			4	5	42
Providence	58	10.8	11.9	6	13	51
Richmond	45	12.2	13.2	5	8	66
White	22		11.3	2	5	40
Colored	23	(6)	18.0	3	3	114
Rochester	62	10.0	13.0	3	8	25
St. Louis	245	15.2	11.9	21	20	
St. Paul	54	11.3	8.4	5	5	45
Salt Lake City [5]	24	9.2	11.4	6	4	91
San Antonio	38	9.4	8.4	8	3	
San Diego	33	15.0	15.2	4	2	85
San Francisco	106	9.6	11.6	7	4	44
Schenectady	12	6.7	9.0	1	1	30
Somerville	18	9.2	8.9	3	0	108
Spokane	26	12.4	12.4	2	1	50
Springfield, Mass.	26	9.2	7.9	7	0	108
Syracuse	42	11.1	12.7	6	3	77
Tacoma	21	10.2	11.3	2	1	47
Toledo	56	9.6	14.3	3	10	29
Trenton	34	12.9	14.0	6	4	104
Washington, D. C.	144	13.9	12.1	16	24	93
White	92		10.4	11	12	93
Colored	52	(6)	17.2	5	12	92
Waterbury	13			3	1	71
Wilmington, Del.	29	12.0	7.6	2	3	50
Worcester	49	13.1	12.2	6	2	72
Yonkers	19	8.3	7.2	2	1	45
Youngstown	34	10.5	10.4	7	6	98

[5] Deaths for week ended Friday Sept. 30, 1927.

[6] In the cities in which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Week Ended October 8, 1927

DIPHTHERIA	Cases
Alabama	120
Arizona	4
Arkansas	11
California	102
Colorado	29
Connecticut	36
Delaware	1
Florida	20
Idaho	1
Illinois	109
Indiana	51
Iowa [1]	18
Kansas	54
Louisiana	42
Maryland [1]	35
Massachusetts	92
Michigan	76
Minnesota	41
Mississippi	54
Missouri	61
Montana	1
Nebraska	15
New Jersey	127
New Mexico	7
New York	211
North Carolina	184
Oklahoma [2]	97
Oregon	8
Pennsylvania	180
Rhode Island	5
South Carolina	89
South Dakota	7
Tennessee	64
Texas	55
Utah [1]	6
Washington	9
West Virginia	20
Wisconsin	23
Wyoming	1

[1] Week ended Friday.
[2] Exclusive of Oklahoma City and Tulsa.

INFLUENZA	Cases
Alabama	13
Arkansas	27
California	23
Colorado	4
Connecticut	2
Illinois	12
Indiana	7
Kansas	4
Louisiana	3
Maine	1
Maryland [1]	3
Massachusetts	5
Minnesota	3
Missouri	6
New Jersey	8
New York	6
Oklahoma [2]	41
Oregon	8
South Carolina	243
South Dakota	1
Tennessee	32
Texas	26
West Virginia	2
Wisconsin	45

MEASLES	
Alabama	15
Arizona	7
Arkansas	6
California	44
Colorado	2
Connecticut	14
Delaware	5
Illinois	18
Indiana	12
Kansas	36
Louisiana	7
Maine	37
Maryland [1]	7
Massachusetts	94
Michigan	9

[1] Week ended Friday.
[2] Exclusive of Oklahoma City and Tulsa.

MEASLES—continued	Cases
Minnesota	2
Missouri	4
Montana	4
Nebraska	1
New Jersey	14
New Mexico	47
New York	71
North Carolina	113
Oklahoma [2]	11
Oregon	8
Pennsylvania	86
Rhode Island	1
South Carolina	52
South Dakota	13
Tennessee	41
Texas	2
Vermont	1
Washington	38
West Virginia	1
Wisconsin	84
Wyoming	18

MENINGOCOCCUS MENINGITIS	
Alabama	1
California	8
Colorado	2
Connecticut	2
Idaho	1
Illinois	3
Iowa [1]	1
Kansas	2
Maryland [1]	1
Massachusetts	1
Michigan	1
Minnesota	2
Missouri	1
Montana	1
Nebraska	1
New Jersey	1
North Carolina	1
Oklahoma [2]	1
Oregon	1
Rhode Island	1
Tennessee	1
Washington	4
Wisconsin	7

POLIOMYELITIS	
Arizona	5
Arkansas	1
California	36
Colorado	4
Connecticut	13
Florida	1
Idaho	1
Illinois	40
Indiana	9
Iowa [1]	12
Kansas	15
Maine	13
Maryland [1]	1
Massachusetts	115
Michigan	30
Minnesota	12
Mississippi	2

[1] Week ended Friday.
[2] Exclusive of Oklahoma City and Tulsa.

POLIOMYELITIS—continued	Cases
Missouri	18
Montana	2
Nebraska	10
New Jersey	14
New Mexico	13
New York	59
North Carolina	1
Ohio	76
Oklahoma [2]	10
Oregon	18
Pennsylvania	29
Rhode Island	8
South Carolina	2
South Dakota	8
Tennessee	3
Texas	15
Utah [1]	4
Vermont	4
Virginia	1
Washington	15
West Virginia	17
Wisconsin	12
Wyoming	1

SCARLET FEVER	
Alabama	32
Arizona	2
Arkansas	12
California	99
Colorado	27
Connecticut	21
Delaware	1
Florida	14
Idaho	3
Illinois	146
Indiana	83
Iowa [1]	30
Kansas	79
Louisiana	10
Maine	23
Maryland [1]	37
Massachusetts	142
Michigan	89
Minnesota	56
Mississippi	25
Missouri	58
Montana	13
Nebraska	20
New Jersey	48
New Mexico	2
New York	131
North Carolina	147
Oklahoma [2]	30
Oregon	12
Pennsylvania	195
Rhode Island	13
South Carolina	29
South Dakota	34
Tennessee	46
Texas	46
Utah [1]	2
Vermont	4
Washington	20
West Virginia	77
Wisconsin	45
Wyoming	8

[1] Week ended Friday.
[2] Exclusive of Oklahoma City and Tulsa.

SMALLPOX	Cases
Alabama	1
Arkansas	3
California	4
Florida	1
Idaho	6
Illinois	10
Indiana	7
Iowa [1]	12
Kansas	3
Louisiana	3
Michigan	9
Mississippi	6
Missouri	1
Montana	23
New York	7
North Carolina	10
Oklahoma [2]	10
Oregon	10
Rhode Island	1
South Carolina	5
South Dakota	3
Tennessee	1
Texas	4
Utah [1]	5
Washington	12
West Virginia	10
Wisconsin	8

TYPHOID FEVER	
Alabama	38
Arizona	8
Arkansas	48
California	8
Colorado	16
Connecticut	3

[1] Week ended Friday.
[2] Exclusive of Oklahoma City and Tulsa.

TYPHOID FEVER—continued	Cases
Delaware	2
Florida	5
Idaho	1
Illinois	39
Indiana	29
Iowa [1]	3
Kansas	31
Louisiana	26
Maine	4
Maryland [1]	27
Massachusetts	16
Michigan	14
Minnesota	7
Mississippi	19
Missouri	21
Montana	10
Nebraska	1
New Jersey	6
New Mexico	6
New York	48
North Carolina	28
Oklahoma [2]	99
Oregon	4
Pennsylvania	38
Rhode Island	2
South Carolina	49
South Dakota	3
Tennessee	81
Texas	48
Utah [1]	2
Vermont	1
Washington	5
West Virginia	39
Wisconsin	19
Wyoming	1

[1] Week ended Friday.
[2] Exclusive of Oklahoma City and Tulsa.

Reports for Week Ended October 1, 1927

DIPHTHERIA	Cases
District of Columbia	16
North Dakota	11
MEASLES	
District of Columbia	2
North Dakota	21
POLIOMYELITIS	
District of Columbia	3
North Dakota	4

SCARLET FEVER	Cases
District of Columbia	10
North Dakota	47
TYPHOID FEVER	
District of Columbia	3
North Dakota	3

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
July, 1927										
Delaware	0	4	----	2	11	----	0	8	0	3
August, 1927										
California	16	387	21	8	239	4	313	243	29	93
Kansas	7	36	5	2	81	----	31	139	9	99
September, 1927										
Arizona	4	4	----	----	5	----	12	1	0	29
Nebraska	0	14	1	----	4	----	20	60	9	18

July, 1927

Delaware:	Cases
Chicken pox	2
Mumps	5
Tetanus	1
Whooping cough	6

August, 1927

Chicken pox:	
California	207
Kansas	24
Dysentery:	
California (amebic)	3
California (bacillary)	24
Kansas	1
German measles:	
California	40
Kansas	3
Hookworm disease:	
California	1
Lethargic encephalitis:	
California	8
Kansas	1
Mumps:	
California	137
Kansas	19
Paratyphoid fever:	
California	5
Rabies in animals:	
California	18
Rocky Mountain spotted or tick fever:	
California	1
Scabies:	
Kansas	1

August 1927—Continued

Tetanus:	Cases
California	8
Trachoma:	
California	3
Kansas	3
Vincent's angina:	
Kansas	1
Whooping cough:	
California	679
Kansas	246

September, 1927

Chicken pox:	
Arizona	4
Nebraska	10
Dysentery:	
Arizona (amebic)	1
German measles:	
Nebraska	2
Lethargic encephalitis:	
Nebraska	2
Mumps:	
Arizona	4
Nebraska	14
Paratyphoid fever:	
Arizona	1
Septic sore throat:	
Nebraska	2
Whooping cough:	
Arizona	9
Nebraska	10

Number of Cases of Certain Communicable Diseases Reported for the Month of July, 1927, by State Health Officers

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	15	71	228	33	36	66	460	414	206
Arizona	8	6	318	13	13	1	81	10	2
Arkansas	52	8	124	74	9	11	[1] 61	111	137
California	367	287	581	152	248	43	787	80	602
Colorado	67	63	152	19	152	19	123	26	74
Connecticut	157	77	131	59	85	0	211	9	113
Delaware	2	4	11	5	8	0	13	3	6
District of Columbia	17	46	14	----	33	14	100	11	48
Florida	3	21	64	8	14	24	56	59	41
Georgia	8	44	102	34	37	85	87	399	118
Idaho	11	4	72	13	20	38	7	6	17
Illinois	422	377	562	526	397	67	1,040	141	1,224
Indiana	68	89	149	26	142	284	164	41	247
Iowa	39	62	74	19	73	87	77	14	96
Kansas	46	35	205	59	102	41	160	59	403
Kentucky [2]	----	----	----	----	----	----	----	----	----
Louisiana	1	52	154	7	18	13	[1] 170	146	41
Maine	44	13	163	10	88	0	34	6	148
Maryland	123	150	56	34	87	0	284	64	278
Massachusetts	423	264	1,023	338	643	0	544	34	360
Michigan	380	251	398	187	435	94	489	50	675
Minnesota	321	90	104	----	286	12	232	16	76
Mississippi	155	43	468	253	30	18	320	321	1,122
Missouri	36	92	171	188	120	61	278	84	348
Montana	23	7	25	3	47	11	48	17	59
Nebraska	30	20	107	70	53	45	9	11	62
Nevada [3]	----	----	----	----	----	----	----	----	----
New Hampshire	----	11	----	----	20	----	----	1	----
New Jersey	404	304	82	----	268	0	427	45	593
New Mexico [4]	----	----	----	----	----	----	----	----	----
New York	1,246	1,142	1,383	842	766	28	1,611	107	1,342
North Carolina	58	62	1,481	----	71	46	----	331	1,432
North Dakota	17	9	31	3	83	13	9	1	15
Ohio	402	291	166	330	373	95	850	85	643
Oklahoma [5]	21	32	236	70	59	98	99	372	75
Oregon	50	41	274	23	33	55	58	23	58
Pennsylvania	934	703	1,316	733	855	11	881	157	1,033
Rhode Island	17	29	6	8	52	0	43	4	15
South Carolina	64	94	535	----	34	35	193	542	530
South Dakota	14	18	41	15	58	34	9	2	52
Tennessee	28	54	85	22	77	55	279	950	246
Texas [3]	----	----	----	----	----	----	----	----	----
Utah [3]	----	----	----	----	----	----	----	----	----
Vermont	67	4	188	52	15	0	17	3	84
Virginia	118	76	363	----	73	27	[1] 220	272	966
Washington	125	65	677	71	80	125	162	25	107
West Virginia	45	50	214	----	128	116	102	89	151
Wisconsin	397	142	1,170	343	290	83	234	15	508
Wyoming	9	2	40	----	27	15	1	1	34

[1] Pulmonary.
[2] Reports received weekly.
[3] Reports received annually.
[4] Report not received at time of going to press.
[5] Exclusive of Oklahoma City and Tulsa.

Case Rates per 1,000 Population (Annual Basis) for the Month of July, 1927

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	0.07	0.33	1.05	0.15	0.17	0.30	2.12	1.91	0.95
Arizona	.21	.15	8.16	.33	.33	.03	2.08	.26	.05
Arkansas	.32	.05	.76	.45	.06	.07	[1] .37	.68	.84
California	.97	.76	1.54	.40	.66	.11	2.09	.21	1.60
Colorado	.73	.69	1.67	.21	1.67	.21	1.35	.29	.81
Connecticut	1.13	.55	.94	.42	.61	.00	1.52	.06	.81
Delaware	.10	.19	.53	.24	.39	.00	.63	.15	.29
District of Columbia	.37	1.00	.31		.72	.31	2.18	.24	1.05
Florida	.03	.18	.55	.07	.12	.21	.48	.51	.35
Georgia	.03	.16	.38	.13	.14	.32	.32	1.48	.44
Idaho	.24	.09	1.59	.29	.44	.84	.15	.13	.37
Illinois	.68	.61	.91	.85	.64	.11	1.68	.23	1.98
Indiana	.25	.33	.56	.10	.53	1.66	.61	.15	.92
Iowa	.19	.30	.36	.09	.35	.42	.37	.07	.47
Kansas	.30	.23	1.32	.32	.66	.26	1.03	.38	2.60
Kentucky [2]									
Louisiana	.01	.32	.94	.04	.11	.08	[1] 1.03	.89	.25
Maine	.65	.19	2.42	.15	1.31	.00	.50	.09	2.20
Maryland	.91	1.11	.41	.25	.64	.00	2.09	.47	2.05
Massachusetts	1.17	.73	2.84	.94	1.78	.00	1.51	.09	1.00
Michigan	1.00	.66	1.04	.49	1.14	.25	1.28	.13	1.77
Minnesota	1.41	.39	.46		1.25	.05	1.02	.07	.33
Mississippi	1.02	.28	3.08	1.66	.20	.12	2.10	2.11	7.38
Missouri	.12	.31	.57	.63	.40	.20	.93	.28	1.17
Montana	.38	.12	.41	.05	.78	.18	.79	.28	.97
Nebraska	.25	.17	.90	.59	.45	.38	.08	.09	.52
Nevada [3]									
New Hampshire		.28			.52			.03	
New Jersey	1.27	.95	.26		.84	.00	1.34	.14	1.86
New Mexico [4]									
New York	1.28	1.18	1.43	.87	.79	.03	1.66	.11	1.38
North Carolina	.24	.25	6.02		.29	.19		1.35	5.82
North Dakota	.31	.17	.57	.06	1.52	.24	.17	.02	.28
Ohio	.71	.51	.29	.58	.65	.17	1.49	.15	1.13
Oklahoma [5]	.12	.18	1.31	.06	.33	.54	.55	2.06	.42
Oregon	.66	.54	3.62	.30	.44	.73	.77	.30	.77
Pennsylvania	1.13	.85	1.59	.89	1.03	.01	1.07	.19	1.25
Rhode Island	.28	.49	.10	.13	.87	.00	.72	.07	.25
South Carolina	.41	.60	3.41		.22	.22	1.23	3.46	3.38
South Dakota	.24	.30	.69	.25	.98	.58	.15	.03	.88
Tennessee	.13	.26	.40	.10	.36	.26	1.32	4.50	1.17
Texas [3]									
Utah [3]									
Vermont	2.24	.13	5.28	1.74	.50	.00	.57	.10	2.81
Virginia	.55	.35	1.68		.34	.12	[1] 1.02	1.26	4.47
Washington	.94	.49	5.10	.54	.60	.94	1.22	.19	.81
West Virginia	.31	.35	1.49		.89	.81	.71	.62	1.05
Wisconsin	1.60	.57	4.72	1.38	1.17	.33	.94	.06	2.05
Wyoming	.44	.10	1.95		1.32	.73	.05	.05	1.66

[1] Pulmonary.
[2] Reports received weekly.
[3] Reports received annually.
[4] Report not received at time of going to press.
[5] Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,700,000. The estimated population of the 92 cities reporting deaths is more than 30,040,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended September 24, 1927, and September 25, 1926

	1927	1926	Estimated expectancy
Cases reported			
Diphtheria:			
43 States	1,525	1,444	
98 cities	607	616	719
Measles:			
42 States	593	937	
98 cities	161	219	
Poliomyelitis:			
43 States	584	126	
Scarlet fever:			
43 States	1,329	1,391	
98 cities	395	450	423
Smallpox:			
43 States	167	122	
98 cities	34	14	22
Typhoid fever:			
43 States	1,041	1,553	
98 cities	165	256	210
Deaths reported			
Influenza and pneumonia:			
92 cities	354	402	
Smallpox:			
92 cities	0	0	

City reports for week ended September 24, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	75,333	0	1	0	0	0	0	0	0
New Hampshire:									
Concord	22,546	0	0	0	0	0	1	0	0
Manchester	83,097	0	3	1	0	0	0	0	1
Vermont:									
Barre	10,008	0	0	0	0	0	0	0	0
Burlington	24,089	0	0	0	0	0	0	0	0
Massachusetts:									
Boston	779,620	6	29	17	2	0	14	2	18
Fall River	128,993	1	3	1	0	0	0	2	0
Springfield	142,065	0	2	9	0	0	0	3	0
Worcester	190,757	3	4	1	0	0	1	3	2
Rhode Island:									
Pawtucket	69,760	0	1	0	0	0	0	0	2
Providence	267,918	0	4	5	0	0	0	0	3
Connecticut:									
Bridgeport	(1)	0	6	4	0	0	0	0	1
Hartford	160,197	0	4	0	0	0	0	0	2
New Haven	178,927	0	2	2	0	0	1	4	2

[1] No estimate made.

City reports for week ended September 24, 1927—Continued

Division, State, and city	Population, July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	7	14	14	-------	0	3	3	10
New York	5,873,356	13	92	107	12	4	10	8	74
Rochester	316,786	0	5	3	-------	0	2	1	3
Syracuse	182,003	0	6	1	-------	0	2	0	1
New Jersey:									
Camden	128,642	0	3	3	0	0	0	0	0
Newark	452,513	6	7	10	2	0	2	9	10
Trenton	132,020	0	3	2	0	0	1	0	0
Pennsylvania:									
Philadelphia	1,979,364	7	41	32	-------	1	5	13	29
Pittsburgh	631,563	5	17	21	-------	0	34	1	13
Reading	112,707	0	2	1	-------	0	1	1	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	2	9	3	0	0	0	0	6
Cleveland	936,485	11	29	47	3	0	5	20	8
Columbus	279,836	5	5	4	0	0	0	0	2
Toledo	287,380	1	11	0	0	0	2	1	1
Indiana:									
Fort Wayne	97,846	-------	2	-------	-------	-------	-------	-------	-------
Indianapolis	358,819	3	9	4	0	0	1	5	7
South Bend	80,091	1	1	0	0	0	1	0	0
Terre Haute	71,071	0	0	0	0	0	0	0	1
Illinois:									
Chicago	2,995,239	16	61	51	1	0	5	8	21
Springfield	63,923	0	1	0	1	1	0	0	0
Michigan:									
Detroit	1,245,824	3	50	39	2	0	4	7	13
Flint	130,316	1	8	1	0	0	0	5	4
Grand Rapids	153,698	3	3	1	0	0	6	0	0
Wisconsin:									
Kenosha	50,891	2	1	0	0	0	0	0	0
Madison	46,385	-------	1	-------	-------	-------	-------	-------	-------
Milwaukee	509,192	13	11	5	0	0	5	5	2
Racine	67,707	3	1	0	0	0	0	1	0
Superior	39,671	2	1	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	0	1	0	0	0	0	0	0
Minneapolis	425,435	8	22	11	0	0	1	1	1
St. Paul	246,001	2	16	0	0	1	2	2	4
Iowa:									
Davenport	52,469	0	1	1	0	-------	0	0	-------
Des Moines	141,441	0	5	1	0	-------	0	0	2
Sioux City	76,411	1	2	0	0	-------	1	0	-------
Waterloo	36,771	0	1	1	0	-------	0	0	-------
Missouri:									
Kansas City	367,481	0	6	5	0	0	0	4	2
St. Joseph	78,342	0	1	0	0	0	0	0	0
St. Louis	821,543	2	28	8	0	0	1	5	-------
North Dakota:									
Fargo	26,403	0	0	0	0	0	0	2	2
South Dakota:									
Aberdeen	15,036	0	0	0	0	-------	0	0	-------
Sioux Falls	30,127	0	0	0	0	-------	0	0	-------
Nebraska:									
Lincoln	60,941	1	1	1	0	0	1	0	0
Omaha	211,768	1	14	0	0	0	1	1	2
Kansas:									
Topeka	55,411	0	1	13	0	0	1	0	1
Wichita	88,367	0	2	6	0	0	3	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	0	1	0	0	0	0	0	1
Maryland:									
Baltimore	796,296	6	17	18	2	3	5	1	16
Cumberland	33,741	0	0	0	0	0	0	0	0
Frederick	12,035	0	0	0	0	0	0	0	0
District of Columbia:									
Washington	497,906	3	7	10	0	0	2	0	5
Virginia:									
Lynchburg	30,395	0	1	4	0	0	0	0	0
Norfolk	[1]	3	2	2	0	0	0	0	2
Richmond	186,403	0	15	3	0	0	3	0	1
Roanoke	58,208	0	4	2	0	0	0	0	1

[1] No estimate made.

City reports for week ended September 24, 1927—Continued

Division, State, and city	Population, July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—con.									
West Virginia:									
Charleston	49,019	0	2	1	0	0	0	0	0
Wheeling	56,208	2	1	0	0	0	3	0	0
North Carolina:									
Raleigh	30,371	0	4	4	0	0	1	0	0
Wilmington	37,061		1						
Winston-Salem	69,031	1	3	3	0	0	4	0	0
South Carolina:									
Charleston	73,125	0	0	1	18	0	0	0	0
Columbia	41,225	0	1	4	0		0	0	3
Greenville	27,311	0	1	0	0	0	0	1	1
Georgia:									
Atlanta	(1)	0	7	4	6	2	1	1	6
Brunswick	16,809	0	0	0	0	0	0	3	0
Savannah	93,134	0	1	0	3	1	0	0	0
Florida:									
Miami	69,754	0		0	0	0	1	1	0
St. Petersburg	26,847		0			0			1
Tampa	94,743	0	1	2	0	0	1	0	2
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	0	1	0	0	0	0	0	0
Lexington	46,895	0		0	0	0	0	0	0
Louisville	305,935	0	7	4	2	0	0	0	8
Tennessee:									
Memphis	174,533	0	5	1	0	0	3	0	4
Nashville	136,220	0	4	3	0	0	0	0	3
Alabama:									
Birmingham	205,670	1	6	5	0	1	0	2	1
Mobile	65,955	0	2	0	0	1	0	0	0
Montgomery	46,481	0	2	3	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	0	1	1	0		0	0	
Little Rock	74,216	0	1	2	2	0	0	0	2
Louisiana:									
New Orleans	414,493	0	7	17	3	2	0	0	6
Shreveport	57,837	0	0	2	0	0	0	3	3
Oklahoma:									
Tulsa	124,478	0		1	0		0	1	
Texas:									
Dallas	194,450	0	6	16	0	0	0	0	0
Galveston	48,375	0	0	0	0	0	0	0	0
Houston	164,954	0	3	6	0	0	0	0	3
San Antonio	198,069	1	1	5	0	0	0	0	2
MOUNTAIN									
Montana:									
Billings	17,971	0	0	0	0	0	0	0	1
Great Falls	29,883	4	1	0	0	0	0	0	0
Helena	12,037	0	0	0	0	0	0	0	0
Missoula	12,668	0	0	0	0	0	1	0	0
Idaho:									
Boise	23,042	1	1	0	0	0	0	3	0
Colorado:									
Denver	280,911	5	14	20		0	4	0	4
Pueblo	43,787	0	3	1	0	0	0	0	0
New Mexico:									
Albuquerque	21,000	0	1	0	0	0	0	0	0
Utah:									
Salt Lake City	130,948	9	4	5	0	0	0	2	1
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	12	5	1	0		3	2	
Spokane	108,897	4	2	2	0		0	0	
Tacoma	104,455		3						
Oregon:									
Portland	282,383	3	5	6	0	1	3	1	3
California:									
Los Angeles	(1)	5	28	16	4	0	7	1	12
Sacramento	72,260	1	2	0	0	0	0	0	1
San Francisco	557,530	8	15	7	0	0	9	11	4

[1] No estimate made.

City reports for week ended September 24, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	0	0	0	0	0	0	1	3	0	6	17
New Hampshire:											
Concord	1	0	0	0	0	1	0	0	0	0	19
Manchester	1	1	0	0	0	0	0	0	0	0	9
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	0	2
Burlington	1	1	0	0	0	0	0	0	0	0	3
Massachusetts:											
Boston	19	23	0	0	0	7	4	17	0	21	195
Fall River	1	6	0	0	0	3	2	1	0	0	20
Springfield	3	2	0	0	0	2	0	0	0	1	39
Worcester	3	11	0	0	0	1	0	0	0	3	42
Rhode Island:											
Pawtucket	1	0	0	0	0	1	0	0	0	0	13
Providence	2	6	0	0	0	2	0	2	0	7	54
Connecticut:											
Bridgeport	2	3	0	0	0	0	0	0	0	0	27
Hartford	2	1	0	0	0	1	1	1	0	11	27
New Haven	2	1	0	0	0	2	2	3	0	8	37
MIDDLE ATLANTIC											
New York:											
Buffalo	8	12	0	0	0	9	2	0	1	20	120
New York	40	41	0	0	0	[1] 88	43	31	7	123	1,123
Rochester	3	1	0	0	0	5	1	1	0	1	56
Syracuse	4	0	0	0	0	1	3	0	0	3	39
New Jersey:											
Camden	3	0	0	0	0	0	1	1	0	0	28
Newark	5	2	0	0	0	5	3	4	0	43	86
Trenton	0	0	0	0	0	2	1	1	0	4	28
Pennsylvania:											
Philadelphia	27	20	0	0	0	31	14	4	0	30	396
Pittsburgh	17	10	1	0	0	9	4	5	0	11	132
Reading	0	0	0	0	0	0	1	1	0	2	19
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	6	2	1	0	0	8	2	2	0	2	106
Cleveland	13	16	1	0	0	15	4	1	1	17	143
Columbus	4	5	0	0	0	1	1	0	0	2	64
Toledo	5	1	0	0	0	4	2	1	1	6	62
Indiana:											
Fort Wayne	1	----	0	----	----	----	1	----	----	----	----
Indianapolis	4	10	1	2	0	0	3	1	0	3	96
South Bend	2	2	0	0	0	0	0	0	0	0	16
Terre Haute	1	1	0	0	0	0	1	0	0	0	21
Illinois:											
Chicago	39	20	0	0	0	47	8	7	0	146	576
Springfield	1	0	0	0	0	1	1	0	1	0	9
Michigan:											
Detroit	33	20	1	0	0	19	6	3	0	79	209
Flint	5	10	1	0	0	2	1	0	0	5	36
Grand Rapids	4	2	0	0	0	0	1	0	0	2	23
Wisconsin:											
Kenosha	1	0	0	0	0	0	0	1	1	5	12
Madison	1	----	0	----	----	----	0	----	----	----	----
Milwaukee	14	9	0	0	0	2	1	0	0	26	66
Racine	2	3	0	0	0	0	0	0	0	11	9
Superior	1	3	1	0	0	1	0	0	0	0	3
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	3	1	0	0	4	1	0	0	4	23
Minneapolis	21	5	0	0	0	3	1	1	0	0	67
St. Paul	9	3	2	0	0	1	2	0	1	3	46
Iowa:											
Davenport	0	0	0	0	----	----	0	0	----	0	----
Des Moines	4	2	0	0	----	1	0	0	----	2	30
Sioux City	1	0	0	0	----	----	0	0	----	2	----
Waterloo	1	1	0	0	----	----	1	0	----	0	----
Missouri:											
Kansas City	4	2	0	0	0	3	2	2	0	4	82
St. Joseph	2	0	0	4	0	1	1	0	0	0	18
St. Louis	13	4	0	0	0	10	6	3	0	18	194

[1] Pulmonary tuberculosis only.

City reports for week ended September 24, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL—continued											
North Dakota:											
Fargo	0	6	0	0	0	0	0	0	0	0	7
South Dakota:											
Aberdeen	1	0	0	0	----	----	0	0	----	1	----
Sioux Falls	1	1	0	0	----	----	1	1	----	0	4
Nebraska:											
Lincoln	0	0	0	0	0	0	0	0	0	0	13
Omaha	2	2	1	0	0	2	0	0	0	0	41
Kansas:											
Topeka	1	1	0	0	0	0	0	1	0	2	8
Wichita	2	3	0	0	0	0	2	0	1	3	25
SOUTH ATLANTIC											
Delaware:											
Wilmington	2	4	0	0	0	1	1	1	1	0	27
Maryland:											
Baltimore	7	19	0	0	0	11	11	2	0	38	193
Cumberland	0	1	0	0	0	0	1	0	0	0	8
Frederick	0	0	0	0	0	0	0	0	0	0	2
Dist. of Columbia:											
Washington	6	8	0	0	0	9	4	2	1	1	102
Virginia:											
Lynchburg	0	0	0	0	0	1	1	0	0	3	9
Norfolk	1	4	0	0	0	2	1	1	0	2	----
Richmond	5	7	0	0	0	4	2	2	0	0	38
Roanoke	1	0	1	0	0	0	2	4	0	0	14
West Virginia:											
Charleston	2	3	0	0	0	1	2	2	0	0	9
Wheeling	3	1	0	0	0	1	1	0	0	0	12
North Carolina:											
Raleigh	1	0	0	0	0	4	0	0	0	0	20
Wilmington	2	----	0	----	----	----	0	----	----	----	----
Winston-Salem	1	0	0	0	0	1	1	0	0	0	19
South Carolina:											
Charleston	0	1	0	0	0	0	2	5	1	4	20
Columbia	0	0	0	0	----	3	1	1	----	3	21
Greenville	0	0	1	0	0	0	1	1	0	0	5
Georgia:											
Atlanta	5	8	0	0	0	5	4	3	1	0	66
Brunswick	0	0	0	0	0	0	0	0	0	0	2
Savannah	1	1	0	0	0	2	0	0	0	1	24
Florida:											
Miami	----	0	----	0	0	2	----	1	0	2	12
St. Petersburg	0	----	0	----	0	0	0	----	0	----	6
Tampa	0	1	0	0	0	1	0	1	0	3	28
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0	0	0	0	0	0	0	0	0	1	----
Lexington	----	0	----	0	0	0	----	1	0	0	12
Louisville	2	5	0	1	0	3	6	7	0	1	65
Tennessee:											
Memphis	2	4	0	0	0	6	5	4	1	0	54
Nashville	3	0	0	1	0	3	5	3	0	0	32
Alabama:											
Birmingham	4	0	1	0	0	4	5	3	0	3	74
Mobile	0	0	0	0	0	0	0	0	0	0	17
Montgomery	1	0	0	0	0	0	0	0	0	0	----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	----	----	0	1	----	0	----
Little Rock	0	0	0	0	0	2	2	2	1	0	----
Louisiana:											
New Orleans	2	4	0	0	0	19	4	8	0	1	143
Shreveport	0	0	0	0	0	1	1	0	0	0	36
Oklahoma:											
Tulsa	----	3	----	0	----	----	----	0	----	0	----
Texas:											
Dallas	2	5	0	0	0	0	2	5	0	1	40
Galveston	0	1	0	0	0	1	1	0	0	0	9
Houston	0	2	0	0	0	4	0	0	0	0	51
San Antonio	1	0	0	0	0	4	1	1	0	0	38

City reports for week ended September 24, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
MOUNTAIN											
Montana:											
Billings	1	1	0	0	0	0	0	0	0	1	7
Great Falls	0	1	0	1	0	0	0	0	0	0	6
Helena	0	0	0	0	0	0	0	0	0	0	5
Missoula	1	0	1	0	0	0	0	0	0	0	6
Idaho:											
Boise	0	0	0	0	0	0	0	0	0	0	7
Colorado:											
Denver	5	10	2	0	0	8	3	0	0	3	66
Pueblo	1	2	0	1	0	1	2	0	0	0	8
New Mexico:											
Albuquerque	1	1	0	0	0	2	2	3	0	0	9
Utah:											
Salt Lake City	2	3	0	16	0	2	3	4	0	8	27
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	[illegible]
PACIFIC											
Washington:											
Seattle	7	2	0	0	------	------	0	2	------	3	------
Spokane	4	1	1	4	------	------	1	0	------	1	------
Tacoma	2	------	1	------	------	------	1	------	------	------	------
Oregon:											
Portland	5	3	2	2	0	1	1	0	0	3	56
California:											
Los Angeles	9	20	2	0	0	23	4	0	0	6	221
Sacramento	1	1	1	4	0	3	1	1	0	1	16
San Francisco	6	3	1	0	0	8	1	2	0	8	132

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Maine:									
Portland	0	0	0	0	0	0	0	3	0
Massachusetts:									
Boston	0	0	0	0	0	0	2	27	0
Falls River	0	0	0	0	0	0	1	1	0
Springfield	0	0	0	0	0	0	1	1	0
Worcester	0	0	0	0	0	0	0	1	0
Rhode Island:									
Pawtucket	0	0	0	0	0	0	0	2	0
Providence	0	0	0	0	0	0	0	3	1
Connecticut:									
Bridgeport	1	0	0	0	0	0	0	1	0
New Haven	0	0	0	0	0	0	0	3	0
MIDDLE ATLANTIC									
New York:									
New York	4	2	5	3	0	0	13	37	5
Rochester	0	0	0	0	0	0	1	1	0
Syracuse	0	0	0	0	0	0	1	2	0
New Jersey:									
Newark	0	0	1	0	0	0	1	8	3
Trenton	0	0	0	0	0	0	0	1	0
Pennsylvania:									
Philadelphia	0	0	1	0	0	0	1	5	0
Pittsburgh	0	0	0	0	0	0	0	4	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	0	0	1	0	0	0	4	1
Cleveland	0	0	0	0	0	0	1	9	1
Columbus	0	0	0	0	0	0	0	3	0
Indiana:									
South Bend	0	0	0	0	0	0	1	1	0
Illinois:									
Chicago	2	0	0	0	0	0	4	14	3
Springfield	0	0	0	0	0	0	0	1	1
Michigan:									
Detroit	0	0	1	1	0	0	2	7	1
Flint	0	0	0	0	0	0	0	0	1

City reports for week ended September 24, 1927—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	0	0	0	0	0	0	0	2	0
Milwaukee	3	2	0	0	0	0	1	2	0
Racine	0	0	0	0	0	0	0	2	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	4	0	0	0	0	0	0	1	0
St. Paul	0	0	0	0	0	0	0	1	0
Iowa:									
Des Moines	0	0	0	0	0	0	0	1	0
Sioux City	0	----	0	----	0	----	0	1	----
Waterloo	0	0	0	0	0	0	0	1	1
Missouri:									
Kansas City	0	0	0	0	0	0	0	5	2
St. Joseph	0	0	0	0	0	0	0	3	2
St. Louis	0	0	0	0	0	0	1	1	0
North Dakota:									
Fargo	0	0	0	0	0	0	0	2	0
South Dakota:									
Sioux Falls	0	----	0	----	0	----	0	2	----
Nebraska:									
Omaha	0	0	0	0	0	0	0	1	1
Kansas:									
Topeka	0	0	0	0	1	0	1	1	0
SOUTH ATLANTIC									
Virginia:									
Lynchburg	0	0	0	0	0	1	0	0	0
West Virginia:									
Wheeling	0	0	1	0	0	0	0	1	0
North Carolina:									
Winston-Salem	0	0	0	0	1	1	0	0	0
South Carolina: [1]									
Columbia	0	0	0	0	0	1	0	0	0
Greenville	0	0	0	0	0	1	0	0	0
Georgia: [2]									
Savannah [1 2]	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Lexington	0	0	0	0	0	0	----	1	0
Louisville	0	0	0	0	0	0	0	2	0
Tennessee:									
Nashville	0	0	0	0	1	0	0	1	2
Alabama:									
Birmingham	0	0	0	0	2	2	0	0	0
Mobile	0	0	0	0	0	1	0	0	0
Montgomery	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	2	0	0	0
Louisiana:									
New Orleans	0	0	0	0	3	0	1	0	0
Shreveport	1	0	0	0	0	0	0	0	0
Texas:									
Dallas	0	0	0	0	0	0	1	2	1
Houston	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Colorado:									
Denver	0	0	0	0	0	0	0	1	0
New Mexico:									
Albuquerque	0	0	0	0	0	0	0	4	1
Utah:									
Salt Lake City	0	0	0	0	0	0	0	3	0
Nevada:									
Reno	0	0	0	0	0	0	0	1	1
PACIFIC									
Washington:									
Seattle	1	----	0	----	0	----	0	0	----
Oregon:									
Portland	1	0	0	1	0	0	0	0	0
California:									
Los Angeles	1	2	0	0	0	1	1	8	1
Sacramento	0	0	0	0	0	0	0	6	0
San Francisco	0	0	0	0	1	1	0	4	0

[1] Dengue: 4 cases at Charleston, S. C., and 1 case at Savannah, Ga.
[2] Typhus fever: 1 case at Atlanta, Ga., and 5 cases at Savannah, Ga.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended September 24, 1927, compared with those for a like period ended September 25, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,445,000 in 1926 and 30,966,000 in 1927. The 95 cities reporting deaths had nearly 29,785,000 estimated population in 1926 and nearly 30,296,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, August 21 to September 24, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926[1]

DIPHTHERIA CASE RATES

	Week ended—									
	Aug. 28, 1926	Aug. 27, 1927	Sept. 4, 1926	Sept. 3, 1927	Sept. 11, 1926	Sept. 10, 1927	Sept. 18, 1926	Sept. 17, 1927	Sept. 25, 1926	Sept. 24, 1927
101 cities	65	81	73	[2] 84	75	94	84	[2] 100	107	[4] 103
New England	50	86	26	88	38	93	35	53	73	91
Middle Atlantic	56	78	59	77	53	90	63	106	70	96
East North Central	76	81	99	87	78	90	95	82	128	[4] 105
West North Central	81	54	67	69	75	64	95	125	127	87
South Atlantic	61	89	69	[3] 89	136	109	110	112	127	[6] 106
East South Central	57	61	41	51	103	107	109	117	134	82
West South Central	34	96	60	164	86	151	77	138	69	206
Mountain	73	135	91	117	173	153	237	225	137	234
Pacific	91	94	134	73	91	92	99	[5] 55	212	[7] 72

MEASLES CASE RATES

101 cities	30	25	25	[2] 21	27	20	28	[2] 20	38	[4] 27
New England	38	58	33	58	35	63	19	30	38	39
Middle Atlantic	15	24	17	18	11	16	10	14	9	30
East North Central	43	13	31	11	29	15	23	18	24	[5] 18
West North Central	20	16	10	16	10	10	12	28	28	20
South Atlantic	15	31	9	[3] 18	19	14	9	14	11	[6] 37
East South Central	36	25	31	10	16	10	16	10	10	15
West South Central	4	17	0	42	4	17	4	17	0	0
Mountain	27	27	36	9	100	36	73	45	118	45
Pacific	94	52	91	42	158	34	212	[5] 59	308	[7] 53

SCARLET FEVER CASE RATES

101 cities	55	54	51	[2] 57	53	52	65	[2] 69	79	[4] 67
New England	54	81	59	60	80	53	75	102	71	123
Middle Atlantic	32	38	25	38	32	30	44	46	56	42
East North Central	55	61	58	80	61	65	60	89	80	[5] 70
West North Central	133	62	131	69	93	91	129	87	153	60
South Atlantic	58	63	37	[3] 60	56	60	48	78	78	[6] 106
East South Central	62	87	57	76	109	97	119	46	83	46
West South Central	26	59	20	59	47	46	30	42	52	50
Mountain	64	63	82	63	73	54	82	99	118	153
Pacific	75	37	70	34	88	31	118	[3] 46	118	[7] 75

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.
[2] Greenville, S. C., not included.
[3] Los Angeles, Calif., not included.
[4] Fort Wayne, Ind., Wilmington, N. C., and Tacoma, Wash., not included.
[5] Fort Wayne, Ind., not included.
[6] Wilmington, N. C., not included.
[7] Tacoma, Wash., not included.

Summary of weekly reports from cities, August 21 to September 24, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SMALLPOX CASE RATES

	Week ended—									
	Aug. 28, 1926	Aug. 27, 1927	Sept. 4, 1926	Sept. 3, 1927	Sept. 11, 1926	Sept. 10, 1927	Sept. 18, 1926	Sept. 17, 1927	Sept. 25, 1926	Sept. 24, 1927
101 cities	4	5	2	[2] 4	2	4	2	[2] 5	3	[4] 6
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	7	6	0	7	2	3	0	0	1	[5] 1
West North Central	0	4	0	2	2	12	0	22	2	8
South Atlantic	9	0	9	[2] 0	2	2	9	4	6	[6] 0
East South Central	0	25	10	0	0	10	0	0	0	10
West South Central	9	0	4	0	0	4	4	4	13	0
Mountain	0	27	0	36	0	9	0	27	0	162
Pacific	13	31	13	18	16	13	19	[2] 55	19	[7] 22

TYPHOID FEVER CASE RATES

101 cities	40	31	40	[2] 32	45	30	53	[2] 33	44	[4] 28
New England	19	33	12	21	17	39	33	46	9	63
Middle Atlantic	39	21	34	28	34	27	55	37	45	24
East North Central	20	11	20	15	20	7	29	16	26	[5] 10
West North Central	42	20	42	10	50	32	26	24	26	14
South Atlantic	56	58	91	[2] 71	104	58	80	31	91	[6] 46
East South Central	233	204	176	183	284	112	248	153	165	87
West South Central	39	75	43	55	39	75	69	38	77	71
Mountain	18	45	9	54	18	63	82	36	36	36
Pacific	38	21	46	8	27	8	35	[2] 13	21	[7] 14

INFLUENZA DEATH RATES

95 cities	3	5	3	[2] 4	4	4	4	[8] 4	6	[4] 3
New England	0	2	0	2	0	5	0	0	5	0
Middle Atlantic	3	2	2	3	4	3	3	4	3	2
East North Central	3	3	4	5	4	4	3	2	3	[5] 1
West North Central	8	2	4	4	0	0	4	4	8	2
South Atlantic	2	11	0	[2] 7	0	6	6	9	9	[6] 11
East South Central	0	15	16	5	0	10	5	0	10	10
West South Central	4	22	9	13	18	13	22	[9] 10	22	9
Mountain	18	9	9	18	36	9	0	9	9	0
Pacific	0	7	0	0	0	7	7	[2] 7	7	[7] 0

PNEUMONIA DEATH RATES

95 cities	47	46	51	[2] 56	51	62	53	[8] 59	65	[4] 58
New England	33	51	50	49	40	65	54	39	75	70
Middle Atlantic	56	55	59	72	65	67	51	60	70	70
East North Central	37	34	34	51	37	59	40	53	45	[5] 43
West North Central	42	31	36	23	30	44	51	46	55	25
South Atlantic	59	37	64	[2] 42	44	50	55	77	79	[6] 65
East South Central	47	66	52	46	41	112	52	102	88	82
West South Central	71	65	49	82	97	65	115	[9] 73	93	69
Mountain	73	36	64	54	64	90	118	99	55	54
Pacific	21	62	78	55	57	52	53	[2] 55	78	[7] 63

[2] Greenville, S. C., not included.
[3] Los Angeles, Calif, not included.
[4] Fort Wayne, Ind., Wilmington, N. C., and Tacoma, Wash., not included.
[5] Fort Wayne, Ind., not included.
[6] Wilmington, N. C., not included.
[7] Tacoma, Wash., not included.
[8] Dallas, Tex., and Los Angeles, Calif., not included.
[9] Dallas, Tex., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,443,800	30,966,700	29,783,700	30,295,900
New England	13	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,650,200	7,810,600	7,650,200	7,810,600
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended September 17, 1927.—The following report for the week ended September 17, 1927, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Madagascar: Tamatave	0	0	0	0	1	----	Dutch East Indies:						
Mauritius: Port Louis	1	0	0	0	0	0	Banjermasin	0	0	0	0	19	0
Iraq: Basra	0	0	8	2	1	1	Makassar [1]	0	0	0	0	0	0
Ceylon: Colombo	1	1	0	0	0	0	French Indo-China:						
British India:							Turane	0	0	5	3	0	0
Bombay	----	1	----	0	1	1	Saigon and Cholon	1	0	0	0	0	0
Madras	----	0	----	6	3	1	Hong Kong	0	0	0	0	1	1
Calcutta	----	0	----	5	10	5	China:						
Bassein	----	5	----	0	0	0	Amoy	0	0	19	----	0	0
Rangoon	----	4	----	2	1	0	Shanghai (Int. S.)	0	0	----	22	0	0
Vizagapatam	----	0	----	0	1	0	Canton	0	0	7	7	0	0
Siam: Bangkok	0	0	1	1	0	0	Newchwang	0	0	3	0	0	0
							Kwantung: Dairen	0	0	1	1	0	0

[1] 1 plague-infected rat was found during the week.

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week.

ASIA

Aden Protectorate.—Aden, Perim, Kamaran.
Arabia.—Bahrein.
Persia.—Bender-Abbas, Bushire, Lingah.
India.—Karachi, Chittagong, Cochin, Tuticorin, Negapatan, Moulmein.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang, Singapore.
Dutch East Indies.—Batavia, Pontianak, Semarang, Cheribon, Padang, Belawan-Deli, Tarakan, Palembang, Menado, Sabang, Surabaya.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
Philippine Islands.—Iloilo, Jolo, Cebu, Zamboanga, Manila.
French-Indo China.—Haiphong.
China.—Tientsin, Tsingtao.
Macao.
Wei-hai-wei.
Formosa.—Keelung, Takao.
Chosen.—Chemulpo, Fusan.
Manchuria.—Yingkow, Antung, Harbin, Mukden, Changchun.
Kwantung.—Port Arthur.
Japan.—Nagasaki, Yokohama, Niigata, Shimonoseki, Moji, Tsuruga, Kobe, Osaka, Hakodate.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns, Port Moresby.
New Guinea.—Port Moresby.
New Britain Mandated Territory.—Rabaul and Kokopo.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.
Western Samoa.—Apia.
New Caledonia.—Noumea.
Fiji.—Suva.
Hawaii.—Honolulu.
Society Islands.—Papeete.

AFRICA

Egypt.—Alexandria, Port Said, Suez.
Anglo-Egyptian Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Djibouti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenco-Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.
Reunion.—St. Denis.
Madagascar.—Majunga, Diego-Suarez.

AMERICA

Panama.—Colon, Panama.

Reports had not been received in time for publication from:

Dutch East Indies.—Balikpapan, Samarinda.
Persia.—Mohammerah.
Union of Socialist Soviet Republics.—Vladivostok.

Belated information:

Week ended September 10: *Banjemasin*, 55 smallpox cases and 3 deaths.
Week ended September 10: *Tientsin*, 1 fatal cholera case.

Movement of Infected Ships

Penang.—The mail steamer *Talamba* arrived September 15 from Amoy, having touched at Singapore infected with cholera.

CANADA

Communicable diseases—Week ended September 24, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended September 24, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever				1				1
Influenza	4							4
Poliomyelitis	4			2		2	58	66
Smallpox				10		22	8	40
Typhoid fever	2	8	17	18	1	7	2	55

Communicable diseases—Quebec—Week ended September 24, 1927.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended September 24, 1927, as follows:

Disease	Cases	Disease	Cases
Chicken pox	11	Scarlet fever	45
Diphtheria	61	Tuberculosis	33
Influenza	2	Typhoid fever	17
Measles	13	Whooping cough	13
Poliomyelitis (infantile paralysis)	1		

Typhoid fever—Montreal—January 2–October 1, 1927.—The following table gives the cases of typhoid fever and deaths from this disease reported at Montreal, Quebec, Canada, since January 1, 1927:

Week ended—	Cases	Deaths	Week ended—	Cases	Deaths
Jan. 8, 1927	3	1	May 28, 1927	353	38
Jan. 15, 1927	4	3	June 4, 1927	239	37
Jan. 22, 1927	1	2	June 11, 1927	128	36
Jan. 29, 1927	3	1	June 18, 1927	86	----
Feb. 5, 1927	1	0	June 25, 1927	75	23
Feb. 12, 1927	0	0	July 2, 1927	66	21
Feb. 19, 1927	1	2	July 9, 1927	52	10
Feb. 26, 1927	1	1	July 16, 1927	39	4
Mar. 5, 1927	9	1	July 23, 1927	22	9
Mar. 12, 1927	203	4	July 30, 1927	23	10
Mar. 19, 1927	383	14	Aug. 6, 1927	16	5
Mar. 26, 1927	568	22	Aug. 13, 1927	20	5
Apr. 2, 1927	649	48	Aug. 20, 1927	14	4
Apr. 9, 1927	386	40	Aug. 27, 1927	8	3
Apr. 16, 1927	175	38	Sept. 3, 1927	27	----
Apr. 23, 1927	125	43	Sept. 10, 1927	17	----
Apr. 30, 1927	105	23	Sept. 17, 1927	13	2
May 7, 1927	106	19	Sept. 24, 1927	6	3
May 14, 1927	367	16	Oct. 1, 1927	18	1
May 21, 1927	770	26			

Poliomyelitis—Edmonton and vicinity, Alberta—September 16–22, 1927.—During the week ended September 22, 1927, 10 cases of poliomyelitis with 1 death were reported at Edmonton, Alberta, and vicinity. It was stated that the public schools had been opened.

CANARY ISLANDS

Plague—Las Palmas.—Four cases of plague were reported at Las Palmas, Canary Islands, on October 8, 1927.

CUBA

Typhoid fever—Malaria—Santiago—Week ended September 24, 1927.—During the week ended September 24, 1927, three cases of typhoid fever with one death were reported at Santiago, Cuba. There were stated to be in the city on September 24, 1927, 39 cases of malarial and 14 cases of typhoid fever officially reported.

Water supply.—The available water supply at Santiago was said to be insufficient in quantity and of unsatisfactory quality.

EGYPT

Plague—August 27–September 2, 1927.—During the week ended September 2, 1927, two cases of plague, occurring at the city of Alexandria were reported in Egypt.

Summary.—During the period January 1 to September 2, 1927, 65 cases of plague were reported in Egypt, as compared with 116 cases reported for the corresponding period of the year 1926.

Plague case at Suez—September 4, 1927.—One case of plague was reported at Suez, September 4, 1927.

JAPAN

Dysentery—Tokyo, city and prefecture—July 31–September 3, 1927.—During the period July 31 to September 3, 1927, dysentery was reported at Tokyo, and in the prefecture, as follows: Tokyo city—cases, 547; deaths, 203. Population, 1,995,567. Prefecture—cases, 808; deaths, 374. Population, 2,489,577.

MALTA

Communicable diseases—July, 1927.—During the month of July, 1927, communicable diseases were reported in the island of Malta as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia	6	Poliomyelitis	1
Diphtheria	3	Puerperal fever	1
Erysipelas	1	Scarlet fever	3
Influenza	2	Trachoma	41
Lethargic encephalitis	1	Tuberculosis	21
Malaria	3	Typhoid fever	70
Malta fever	90	Whooping cough	12
Pneumonia	2		

Population (civil), estimated, 227,440.

Mortality.—The total number of deaths reported during the month of July, 1927, was 575, including diphtheria, 2, and tuberculosis, 17.

MEXICO

Further relative to typhoid fever—Nogales.[1]—Further information received regarding the prevalence of typhoid fever in Nogales, Mexico, showed 80 cases estimated as having occurred in August and September to date of the report. The water supply of Nogales, Mexico, is obtained from deep wells, and it is stated that within 300 meters of the wells there are approximately 200 cesspools. According to the report, bacteriological examination of the water from these wells showed the presence of *B. coli* in all samples.

NORWAY

Poliomyelitis—July–September 17, 1927.—Information received under date of September 20, 1927, shows poliomyelitis present in six localities in Norway during the period July to September 17, 1927, with a total of 25 reported cases and 7 cases present on September 17, 1927.

RUMANIA

Further relative to poliomyelitis—September 15, 1927.—Information received under date of September 15, 1927, shows 82 cases of poliomyelitis present at Bucharest and 70 cases in the Provinces on that date. It was stated that the crisis of the epidemic was believed to have passed.[2]

[1] Public Health Reports, Oct. 7, 1927, p. 2477.
[2] Public Health Reports, Sept. 30, 1927, p. 2422.

SENEGAL

Plague—Yellow fever—September 12–18, 1927.—Plague and yellow fever were reported in Senegal, West Africa, during the period September 12 to 18, 1927, as follows:

Plague.—Interior: Baol region—cases 27, deaths 15; Cayor region—cases 175, deaths 90. Urban occurrence—Dakar, cases 5, deaths 3. Rufisque—cases 2, with 1 death in suburb.

Yellow fever.—Three suspect cases occurring one each at Goree Island, in a European who refused to go to the Dakar lazaretto with other Europeans, at Kaolack, in a Moroccan, and at Pout in a Syrian. At Thies a fatal case was reported.

VENEZUELA

Mortality from infantile diseases and tuberculosis—Caracas—August, 1927.—During the month of August, 1927, 47 deaths from diarrhea and enteritis, of which 37 were in children under 2 years old, and 28 deaths from tuberculosis, were reported at Caracas, Venezuela. The total number of deaths reported for all causes was 253. Population, 135,253.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The reports contained in the following tables must not be considered as complete or final as regard either the lists of countries included or the figures for the particular countries for which reports are given

Reports Received During Week Ended October 14, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Amoy	Aug. 14-27	20	5	
Canton	July 31-Aug. 27	31	16	
Foochow	Aug. 21-27			Present.
Shanghai	Aug. 21-Sept. 3	2	45	Cases, in International Settlements.
Swatow	Aug. 21-27			Prevalent.
India				July 31-Aug. 13, 1927: Cases, 22,000; deaths, 10,892.
Bombay	Aug. 14-20	6	3	
Calcutta	Aug. 21-27	18	7	
Madras	Aug. 28-Sept. 3	29	24	
India, French settlements in	June 19-July 16	156	101	
Indo-China	July 11-Aug. 10	2,495		
Annam	do	1,409		
Cambodge	do	100		
Cochin-China	do	165		
Laos	do	137		
Tonkin	do	624		
Iraq:				
Basra	Sept. 4-10	21	15	
Philippine Islands:				
Manila	Aug. 21-27	1		
Siam				Aug. 14-20, 1927: Cases, 22; deaths, 12.
				Apr. 1-Aug. 20, 1927: Cases, 678; deaths, 468.
Bangkok	Aug. 14-20	1	1	District.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended October 14, 1927—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Azores:				
St. Michaels	July 3-9	1		At Arrifes.
Do	Aug. 7-27	2		Arrifes, 1; Ribeira Grande, 1.
Brazil:				
Sao Paulo	June 3-19	1	1	
British East Africa:				
Kenya	July 1-31	13		
Ceylon:				
Colombo	Aug. 21-27	1		
Egypt				Jan. 1-Sept. 3, 1927: Cases, 65; corresponding period 1926, cases, 116.
Alexandria	Aug. 27-Sept. 2	2		
Suez	Sept. 4	1		
India				July 31-Aug. 13, 1927: Cases, 709; deaths, 256.
Bombay	Aug. 14-20	5	4	
Madras (Presidency)	Aug. 7-13	154	92	
Rangoon	Aug. 21-27	4	3	
Indo-China (French)	July 11-Aug. 10	18		
Kwang-Chow-Wan	July 11-31	5		
Java:				
Batavia	Aug. 21-27	15	16	Province.
Senegal:				
Interior—				
Baol region	Sept. 12-18	27	15	
Cayor region	do	175	90	
Urban—				
Dakar	do	5	3	
Rufisque	do	2	1	In suburb.
Siam				Apr. 1-Aug. 20, 1927: Cases, 10; deaths, 7.

SMALLPOX

Algeria	July 11-31	234		
Brazil:				
Rio de Janeiro	Aug. 28-Sept. 3	5	1	
British South Africa:				
Northern Rhodesia	Aug. 13-26	50	1	Natives.
Canada:				
Alberta	Sept. 18-24	8		
Ontario	do	10		
Ottawa	Sept. 25-Oct. 1	3		
Toronto	Sept. 18-24	1		
Saskatchewan	do	22		
Moose Jaw	do	7		
China:				
Foochow	Aug. 20-27			Present.
Chosen	June 1-30	56	10	
France	July 1-31	23		
Gold Coast	June 1-30	8		
India				July 31-Aug. 13, 1927: Cases, 3,361; deaths, 999.
Bombay	Aug. 14-20	5	3	
Calcutta	Aug. 21-27	7	7	
Madras	Aug. 28-Sept. 3	2		
Rangoon	Aug. 21-27	1		
India, French Settlements in	June 19-July 10	51	36	
Indo-China	July 21-Aug. 10	4		
Saigon	Aug. 13-19	1		Including Cholon.
Iraq:				
Baghdad	Sept. 4-10	1	1	
Basra	do	1	1	
Mexico	Apr. 1-May 31		395	
Morocco	July 1-31	53		
Nigeria	June 1-30	275	57	
Portugal:				
Lisbon	Aug. 28-Sept. 17	2		
Siam				Aug. 14-20, 1927: Cases, 6; deaths, 1. Apr. 1-Aug. 20, 1927: Cases, 198; deaths, 50.
Spain:				
Madrid	Aug. 1-31		1	
Union of South Africa:				
Cape Province	Aug. 14-20			Outbreaks.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received During Week Ended October 14, 1927—Continued

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Bulgaria	June 21–July 10	16	2	
Chile:				
Valparaiso	Aug. 28–Sept. 3	1	1	
China:				
Antung	Aug. 15–21	1		
Chosen	June 1–30	209	18	
Lithuania	July 1–31	44	5	
Mexico	Apr. 1–May 31		52	
Mexico City	Sept. 11–17	1		
Morocco	July 11–Aug. 20	137		
Rumania	June 26–July 23	33	3	

YELLOW FEVER

Gold Coast	June 1–30	15	2	
Senegal				
Thies	Sept. 12–18	1	1	Sept. 12–18, 1927: 3 suspect cases, occurring 1 each at Goree Island, Kaolack, and Pout; European, 1.

Reports Received from June 25 to October 7, 1927 [1]

CHOLERA

China:				
Amoy	May 22–Aug. 13	11	3	
Canton	May 1–July 23	16	7	
Foochow	July 24–30			Present.
Hong Kong	July 17–23	2	2	
Kulangsu	June 21	1		
Shanghai	June 19–25	2		
Do	July 31–Aug. 20		16	In international settlement and French concession.
Swatow	May 15–Aug. 6	138	13	Cases, 125,674; deaths, 71,156.
India	Apr. 17–July 30			
Bombay	May 8–Aug. 13	115	50	
Calcutta	May 8–Aug. 20	633	380	
Karachi	May 29–June 4	1	1	
Madras	June 19–Aug. 29	760	386	
Rangoon	May 8–Aug. 13	18	14	
India, French settlements in	Mar. 30–June 30	15	8	
Indo-China (French)	Apr. 1–July 10			Cases, 11,145.
Annam	do	1,467		
Cambodge	do	235		
Cochin-China	do	1,354		
Saigon	June 4–July 21	10	4	
Tonkin	Apr. 1–June 30	8,089		
Iraq:				
Baghdad	July 24–30	29	18	
Basra	July 17–Aug. 27	353	264	
Japan:				
Yokohama	July 31–Aug. 6	1	1	
Persia:				
Abadan	July 24–Aug. 13	215	183	
Ahwaz	July 31–Aug. 13	20	13	
Minab	Aug. 7–13		23	
Mohammerah	July 17–Aug. 27	194	155	
Nasseri	July 19–31		10	
Philippine Islands:				
Manila	July 17–23	1		
Bulacan Province	June 7–July 8	3	2	
Leyte Province—				
Barugo	June 29	1	1	
Carigara	June 23	1	1	Final diagnosis not received.
Palo	May 18	1		
Siam	May 1–Aug. 13			Cases, 269; deaths, 165.
Bangkok	do	44	13	
On vessel:				
S. S. Adrastus	Reported Aug. 6	1	1	At Yokohama, Japan.
S. S. War Mehtar (oil tanker)	Aug. 4	1	1	At Saffagha, Egypt.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 25 to October 7, 1927—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Algeria:				
Algiers	Aug. 21–31	1		
Oran	Aug. 21–Sept. 10	5	4	
Argentina	Jan. 1–Aug. 2			Cases, 80; deaths, 44.
Buenos Aires	Apr. 10–May 7	4	3	
Cordoba	Jan. 11–Aug. 6	52	29	
Corrientes	June 1	1	1	
Entre Rios	Mar. 29–Aug. 13	8	1	
Santa Fe	Apr. 28–May 16	4	3	
Territory—				
Chaco—				
Barranqueras	May 29	2	2	
Formosa	June 25	3	2	
Pampa	July 27–Aug. 2	4		
Rio Negro	Aug. 6	1		
City—				
Merou	Reported July 14			Present.
Rosario	May 7	1	1	
Santa Fe	May 16	4	2	
Azores:				
St. Michaels Island	May 15–July 30	3		
Ribeira Grande	June 12–18	1		
British East Africa:				
Kenya	Apr. 24–July 2	60	14	
Mombassa	July 24–30	1	1	
Nairobi	May 22–28	6		
Tanganyika	Mar. 29–May 28		37	
Do	July 24–Aug. 6		10	
Uganda	Jan. 1–Feb. 28	138	121	
Do	Mar. 27–June 18	366	300	
Canary Islands:				
Laguna district—				
Tejina	June 17	1		
Ceylon:				
Colombo	May 1–July 2	17	11	Plague rats, 4.
China:				
Amoy	July 3–23			Present in surrounding country.
Tientsin	Aug. 14–20	2		
Ecuador:				
Guayaquil	June 1–July 31			Rats taken, 48,290; found infected, 34.
Egypt	May 1–July 8			Cases, 7; deaths, 2.
	Aug. 6–12			Cases, 5.
Alexandria	June 4–10	1		
Beni-Souef	June 4–July 13	5	2	
Biba	June 4–10	1		At Nama.
Dakhalia	June 24–July 9	6	1	
Minia	Aug. 8–9	4		
Port Said	June 24–July 21	4	1	
Tanta district	June 4–10	1		
Greece	May 1–June 30	4	3	
Athens	June 1–Aug. 29	3		Including Piraeus.
Mytilene	Aug. 9	1		
Patras	May 30–Sept. 4	8	1	
Hawaii Territory:				
Hamakua	July 15			1 plague rodent.
Honokaa	May 17–23	2	2	
Kukuihaele	Aug. 12–17	1	1	1 plague rodent.
Paauilo	July 26–Aug. 1		4	
India	Apr. 17–July 16			Cases, 21,814; deaths, 8,324.
Bombay	May 8–Aug. 13	90	77	
Madras	May 1–Aug. 6	552	252	
Rangoon	May 8–Aug. 20	59	55	
Indo-China (French)	Apr. 1–July 10	32		
Kwang-Chow-Wan	May 21–July 10	68		
Iraq:				
Baghdad	Apr. 8–May 28	12	1	
Java:				
Batavia	May 1–Aug. 20	228	228	Province.
East Java and Madura	May 22–July 16	28	27	
Pasoeroean Residency	May 9			Outbreak reported at Nagdiwano.
Surabaya	Apr. 17–Aug. 6	56	55	
Madagascar				Mar. 16–Apr. 30, 1927: Cases 256; deaths, 135.
Province—				
Ambositra	Mar. 16–July 15	94	87	
Antisrabe	Mar. 16–May 15	8	8	
Miarinarivo (Itasy)	Mar. 16–July 15	65	59	
Moramanga	May 16–July 15	24	23	
Tananarive	Mar. 16–July 15	221	194	
Tananarive Town	Mar. 16–June 30	22	20	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 25 to October 7, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Nigeria	Mar. 1–May 31	228	177	
Peru	Apr.–May 31			Cases, 22; deaths, 8.
Departments—				
Ica	Apr. 1–30	1		
Lambayeque	do	1		
Libertad	Apr. 1–May 31	7	4	
Lima	do	13	4	
Lima City	Apr. 1–30	5	1	
Senegal	May 23–Sept. 11			Cases, 901; deaths, 531.
Baol	June 2–Sept. 11	100	47	
Cayor Frontier	July 4–Sept. 11	537	325	
Dakar	June 20–Sept. 11	140	90	
Facel	July 6	17	8	
Guindel	June 20–23	11	2	
M'Bour	July 6–10	28	23	
Medina	June 13–19	2	2	
Pout	July 4–10	1		
Rufisque	May 23–Sept. 11	220	165	
Thies district	do	29	11	
Tivaouane	June 2–July 17	50	32	
Siam	Apr. 1–Aug. 13			Cases, 10; deaths, 7.
Bangkok	May 8–June 11	2	1	
Syria:				
Beirut	June 11–July 10	3		
Tunisia	Apr. 21–July 10	144		
Tunis	July 25–Aug. 1	1		
Turkey:				
Constantinople	May 13–19	1		
Union of South Africa:				
Cape Province—				
Maraisburg district	May 1–14	2	2	Native.
Orange Free State—				
Edenburg district	July 17–26	3	3	Natives; on farm.
Rouxville district	July 24–Aug. 6	2	2	
On vessel:				
S. S. Avoroff	June 24–30	1		On Greek warship at port of Athens.
S. S. Capafric	Aug. 23	3	1	At Duala, French Cameroons, from Nigeria.
S. S. Elcano	Aug. 19	1		At Piraeus, Greece.
S. S. Madonna	Aug. 24	1		At Dakar, Senegal, from ports south.
S. S. Ransholm	Aug. 5	3		At Gefle, Sweden, from Rufisque, Senegal.

SMALLPOX

Algeria	Apr. 21–July 10			Cases, 648.
Algiers	May 11–June 30	8		
Oran	May 21–Sept. 10	51		
Angola	June 1–July 15	18		
Arabia:				
Aden	July 17–Aug. 1	2	1	
Brazil:				
Porto Alegre	July 1–31	5		
Rio de Janeiro	May 22–Aug. 27	15	12	
British East Africa:				
Kenya	Apr. 24–May 14	7	14	
Tanganyika	Mar. 29–June 18	2	22	
Zanzibar	Apr. 1–May 31	19	7	
British South Africa:				
Northern Rhodesia	Apr. 30–Aug. 12	111	2	
Canada	June 5–Sept. 17			Cases, 500.
Alberta	June 12–Sept. 17			Cases, 102.
Calgary	June 12–Aug. 27	9		
British Columbia—				
Vancouver	May 23–Sept. 4	4		
Manitoba	June 5–Sept. 17			Cases, 38.
Winnipeg	June 12–Sept. 16	21		
Nova Scotia	Sept. 11–17	1		
Ontario	June 5–Sept. 17			Cases, 205.
Ottawa	June 12–Sept. 24	138		
Sarnia	Aug. 7–13	1		
Toronto	June 19–Sept. 10	10		
Quebec	June 19–Aug. 27	15		
Saskatchewan	June 12–Sept. 10			Cases, 104.
Moose Jaw	Aug. 14–Sept. 10	14		
Regina	July 17–Aug. 27	10		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 25 to October 7, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Ceylon	May 1-7			Cases, 3; deaths, 1.
Colombo	July 31-Aug. 6	1	1	
China:				
Amoy	May 8-28	1		
Do	July 3-16			Present in surrounding country.
Antung	July 4-31	3		
Chefoo	May 8-14			Present.
Foochow	May 8-Aug. 13			Do.
Hong Kong	do	20	19	
Manchuria—				
Anshan	May 22-28	1		
Changchun	May 15-July 30	8		
Dairen	May 2-July 3	10	5	
Fushun	May 15-July 30	10		
Harbin	June 13-July 10	4		
Kaiyuan	July 3-9	2		
Mukden	May 22-July 30	6		
Pensihu	July 3-9	1		
Ssupingkai	May 8-July 9	3		
Tientsin	May 8-July 30	18		
Chosen	Feb. 1-May 31			Cases, 451; deaths, 195.
Chinnampo	Apr. 1-May 31	2		
Fusan	Apr. 1-30	1		
Gensan	May 1-31	1		
Seishin	Apr. 1-30	1		
Curaçao	May 29-June 4	1		Alastrim.
Ecuador:				
Guayaquil	June 1-30	2		
Egypt	May 7-July 29			Cases, 21; deaths, 3.
Alexandria	May 21-June 17	4	1	
Cairo	Jan. 22-Apr. 15	14	3	
France	Apr. 1-June 30			Cases, 178.
Lille	July 24-30	1		
Paris	May 21-July 31	14	2	
Gold Coast	Mar. 1-May 31	33	7	
Great Britain:				
England and Wales	May 22-Sept. 10			Cases, 2,964.
Birmingham	Aug. 14-20	1		
Bradford	May 29-June 11	2		
Cardiff	June 19-July 2	4		
Leeds	July 17-Sept. 3	13		
Liverpool	July 17-30	1		
London	May 15-June 18	2		
Newcastle upon Tyne	June 12-Aug. 13	5		
Sheffield	June 12-Aug. 6	25		
Stoke-on-Trent	Aug. 21-27	1		
Scotland—				
Dundee	May 29-Sept. 3	6		
Greece	June 1-30	14		
Salonika	July 12-Aug. 15		2	
Guatemala:				
Guatemala City	June 1-30		9	
Guinea (French)	June 4-10	9		
India	Apr. 17-July 30			Cases, 68,687; deaths, 18,006.
Bombay	May 28-Aug. 13	227	147	
Calcutta	May 8-Aug. 20	383	294	
Karachi	May 15-Aug. 6	10	5	
Madras	May 22-Aug. 27	24	6	
Rangoon	May 8-Aug. 20	182	155	
India, French Settlements in	Mar. 20-June 18	174	111	
Indo-China (French)	Mar. 21-July 20			Cases, 314.
Saigon	May 14-July 21	2	1	
Iraq:				
Baghdad	Apr. 10-16	2		
Basra	Apr. 10-Aug. 20	3	2	
Italy	Apr. 10-May 21	13		
Rome	June 13-July 10	2		
Jamaica	May 29-Aug. 27	30		Reported as alastrim.
Japan	Apr. 3-May 7			Cases, 19.
Nagasaki City	June 20-Aug. 14	26	7	
Taiwan Island	May 21-31	1		
Java:				
Batavia	May 22-Aug. 20	7		
East Java and Madura	Apr. 24-July 30	13		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 25 to October 7, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Latvia	Apr. 1-30	1		
Mexico	Mar. 1-31			Deaths, 162.
Durango	June 1-30		1	
La Oroya	Apr. 1-June 30			Present.
Monterey	July 1-31	6	4	
San Luis Potosi	May 29-Aug. 13		11	
Tampico	June 1-July 31	1	2	
Torreon	Aug. 7-13		1	
Morocco	Apr. 1-June 30	154		
Netherlands India:				
Borneo—				
Holoe Soengei	Apr. 21			Epidemic in two localites.
Pasir Residency	Apr. 30-May 6			Epidemic outbreak.
Samarinda Residency	May 21-27			Do.
Nigeria	Mar. 1-May 31	2,077	513	
Paraguay:				
Asuncion	July 10-23		2	
Persia:				
Teheran	Feb. 21-June 22		14	
Poland	Apr. 10-Aug. 6	20	2	
Portugal:				
Lisbon	May 29-Aug. 6	17	1	
Oporto	Sept. 3-9	1		
Senegal:				
Medina	July 4-10	7		
Siam	Apr. 1-Aug. 13			Cases, 192; deaths, 49.
Bangkok	May 1-July 23	13	7	
Spain:				
Valencia	May 29-June 4	2		
Straits Settlements	June 12-18			Cases, 3.
Singapore	Apr. 1-June 18	7	2	
Sumatra:				
Medan	June 5-Aug. 20	3		
Switzerland:				
Berne	June 26-July 2	1		
Syria:				
Damascus	Aug. 11-31	3		
Tunisia	Apr. 1-June 10			Cases, 10.
Tunis	June 1-10	1		
Union of South Africa:				
Cape Province	July 17-23			Outbreaks.
Elliott district	May 11-June 10			Do.
Idutywa district	July 3-9			Do.
Kalanga district	May 11-June 10			Do.
Mount Ayliffe district	July 31-Aug. 6			Do.
Orange Free State	Aug. 7-13			Do.
Transvaal—				
Barberton district	May 1-7			Do.
Venezuela:				
Maracaibo	July 12-18		1	

TYPHUS FEVER

Algeria	Apr. 21-July 20			Cases, 399; deaths, 39.
Algiers	May 11-Aug. 31	26		
Oran	May 21-Aug. 31	34		
Bulgaria	Mar. 1-June 20			Cases, 206; deaths, 18.
Sofia	June 4-Aug. 5	2		
Chile:				
Antofagasta	Apr. 16-May 31	1		
Concepcion	May 29-June 4		1	
La Calera	Apr. 16-May 31	1		
Ligua	Mar. 16-31	2		
Puerto Montt	Apr. 16-May 31	1		
Santiago	do	5	1	
Talcahuano	July 10-16		1	
Valparaiso	Apr. 16-Aug. 27	4	2	
China:				
Manchuria—				
Harbin	July 25-31	3		
Mukden	May 29-June 4	1		
Tientsin	July 10-16	1		
Chosen	Feb. 1-May 31			Cases, 512; deaths, 42.
Chemulpo	May 1-July 31	1		
Gensan	do	4		
Seoul	Apr. 1-July 31	32	3	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

Reports Received from June 25 to October 7, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Czechoslovakia	Apr. 1—July 31			Cases, 55.
Egypt	May 28–July 29			Cases, 120; deaths, 18.
Alexandria	May 21–Aug. 5	13	5	
Cairo	Jan. 15–May 20	37	12	
Estonia	Apr. 1–June 30			Cases, 5.
Greece	June 1–30	2		
Athens	June 1–July 31	1	9	
Iraq:				
Baghdad	Apr. 24–30	1		
Irish Free State:				
Cork County	July 3–9	1		In urban district.
Latvia	Apr. 1–July 31	32		
Lithuania	Feb. 1–June 30	303	37	
Mexico	Feb. 2–Mar. 31			Deaths, 83.
Mexico City	May 29–Sept. 10	53		Including municipalities in Federal district.
San Luis Potosi	July 31–Aug. 6		1	
Morocco	Apr. 1–July 10	815		
Palestine	May 24–Sept. 5			Cases 19.
Haifa	May 24–Aug. 29	8		
Jaffa	Aug. 2–15	2		
Jerusalem	June 28–Aug. 15	3		
Mahneim	May 17–23	1		In Safad district.
Nazareth	July 19–25	1		
Safad	May 17–Aug. 8	10		
Peru:				
Arequipa	Apr. 1–30		1	
Poland	Apr. 10–Aug. 13	1,056	98	
Portugal:				
Lisbon	May 29–June 4	1		
Oporto	Aug. 20–27	1		
Rumania	Apr. 3–June 25	923	61	
Spain:				
Seville	Aug. 19–25		2	
Tunisia	Apr. 22–July 20			Cases, 153.
Tunis	July 5–Aug. 21	2		
Turkey:				
Constantinople	May 13–19		2	
Union of South Africa	Apr. 1–30			Cases, 55; deaths, 8, native. In Europeans, cases, 2.
Cape Province	Apr. 1–Aug. 6	42	5	
Albany district	June 5–11			Outbreaks.
East London	May 22–28	1		Do.
Glen Gray district	May 1–7			Do.
Kentani district	June 26–July 2			Do.
Port Elizabeth	Aug. 7–13	1		
Qumbu district	May 1–7			Do.
Umzimkulu district	June 26–July 2			Do.
Natal	Apr. 1–Aug. 6	7	3	
Impendhle district	June 5–11			Do.
Orange Free State	Apr. 1–July 23	5		
Transvaal	Apr. 1–30	1		
Johannesburg	July 3–Aug. 20	19	5	
Yugoslavia	May 1–Aug. 31			Cases, 24; deaths, 5.

YELLOW FEVER

Ashanti:				
Obuasi	Aug. 6	1	1	
Dahomey (West Africa):				
Porto Novo	July 1	1	1	In Syrian woman.
Gold Coast	Apr. 1–May 31	45	20	
Do	Aug. 4	2		
Ivory Coast	July 29	1	1	
Liberia:				
Monrovia	May 29–July 8	4	5	
Senegal	May 27–July 31			Cases, 5; deaths, 2.
Dakar	July 9	1		
Do	Aug. 8	2	2	
Do	Sept. 17			Present.
Island of Goree	Aug. 22–Sept. 4	2	2	
Khembole	Aug. 1–14	3		
M'Bour	May 27–June 19	5	5	
Ouakam	June 2–Aug. 14	4	2	
St. Louis	Aug. 1–14	2	2	
Thies	July 10	1	1	In European.
Tiaroye	Aug. 22–Sept. 4	1	1	
Tivaouane	May 27–Sept. 11	6	5	
Togoland:				
Meiatza	Aug. 15–21	1	1	